

American Artisan

and
Hardware Record

Sheet Metal - Roofing - Warm Air Furnaces - Stoves

Vol. 91, No. 20

CHICAGO, MAY 15, 1926

\$2.00 Per Year

There is no substitute for high quality.

If you want the best profits sell warm air heaters that give the best service.

Success Heaters

The heating plant provides winter comfort for the home. No prospect will disagree with you that it should be the best obtainable.



READ this book—you'll find it interesting. We supply it to Success dealers for distribution to their prospects.

A satisfied customer can't help boosting the Success Heater you sell him. A dissatisfied customer won't stop knocking if you sell him a poor furnace. Success Heaters are made for the best homes and dealers who want Better Business.



THIS is the Success catalog. It contains 32 pages of illustrations and descriptions of the Success Heater line.



Success Heater Manufacturing Co., Des Moines, Iowa

Canton, Ohio

Spokane, Wash.

Baltimore, Md.

Pittsburgh, Penna.

Here is the WEIR Burning Soft Coal

yet
providing Hard Coal
and Coke Results

YOUR customers want to burn soft coal *for economy* and with the Weir they can do so.

The Weir is especially designed for soft coal burning—possessing an exclusive, patented fire pot that admits pre-heated air over the soft coal fire creating perfect combustion by causing all the rich, burnable gases to be utilized.

Notice the illustration above—air is drawn in thru the “Gas Draft” opening at the front and passes three times around the outside of the fire-pot, becoming thoroly heated, and then enters the fire pot thru the openings at the top, *actually burning the gases as shown in the illustration* and creating an intensely hot fire.

This soft coal burning with the Weir is not an experiment but an established fact of long standing, (43 years to be exact).

This feature of the Weir, providing a big saving in fuel costs and at the same time superior heating results boosts your furnace business—let us tell you more about it.

The MEYER FURNACE Co.
Peoria, Illinois



The Famous

Weir

**GAS AND SOOT
CONSUMING**

Fire Pot

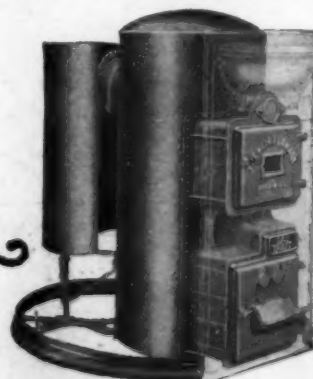
**An exclusive patented
feature of the—**

Weir Steel Furnace



“The Book of Weir Facts”

tells about this Weir feature and the Weir furnace. Write for a copy—you'll find it interesting and instructive.





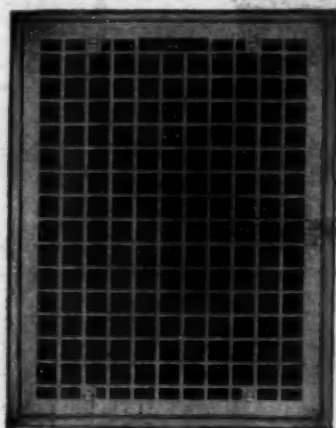
A Face Shoes Can't Push In

THE faces of T&B Registers are heavy and strong enough to stand the wear and tear of rough usage. Put them where you will, exposed positions in hallway or nursery, and they'll show shoes and furniture the stuff they're made of.

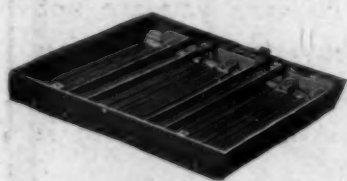
Twelve gauge steel, that's what it is. Heavier than necessary in some cases but we like to play safe—for your sake as well as our own.

For example—take the bottom of these registers. We put four re-enforcing bars under the face. Just an extra margin of safety. Don't forget either that this is a bevelled bottom—the only one on the market. Easy fitting makes easy work.

We'll gladly send you a catalogue of the T&B line—steel, semi-steel, and cast registers all made by us.



*Style 70
All-Steel Register*



All-Steel Bottom

TUTTLE & BAILEY MFG CO.

Makers of Registers for 80 years

36 Portland Street, Boston

441 Lexington Avenue, New York

1123-29 West 37th Street, Chicago

704 East 18th Street, Kansas City

Bridgeburg, Canada

T & B Registers and Grilles



THE THATCHER METEOR FURNACE

One piece cast iron radiator. High combustion chamber. Double feed door. One or two place fire pot. Large centrally located water pan. Extra high ash pit.

76 Years of Leadership Behind Thatcher Products!

BUILT INTO every Thatcher product is all the experience we have gained in over 76 years of heating service to American homes! We have consistently led in progressive, sound improvements in heating design until, today, the name **THATCHER** is a household word for good heating service.

The Meteor Furnace—a Thatcher favorite—is one of the most popular selling furnaces made, because of its many improved features and excellent construction. It can be depended upon to deliver ample warmth on the very coldest days—and as hard or soft coal or wood can be burned with equal facility, it is just as economical as it is efficient!

It will pay you in profits and prestige to push the METEOR. Write us, TODAY, and we will tell you just how we can help you!

THE THATCHER COMPANY

Formerly Thatcher Furnace Co.
Since 1850

341 N. Clark St.
CHICAGO

39-41 St. Francis St.
NEWARK, N. J.

21 W. 44th St.
NEW YORK

THATCHER

BOILERS-FURNACES-RANGES

NIAGARA FURNACES



The scientifically built warm air furnace.

Every process of its manufacture is checked by laboratory tests.

When you sell a Niagara you are not gambling with the buyer's good will. You *know* you are selling satisfaction for every Niagara must be right before it leaves the plant.

Niagara Dealer Profits

The Niagara is sold in a way that makes it profitable to be a Niagara Dealer.

Write or wire today for our 1926 Sales Plan.

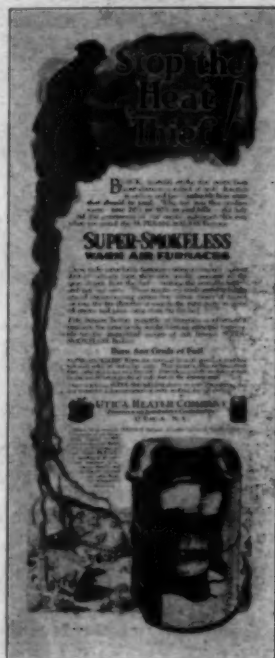
The Forest City Fdy. & Mfg. Co.

1220 Main Avenue

Cleveland, Ohio

Also Manufacturers of Monarch Furnaces

National Advertising Creates Demand For The SUPER-SMOKELESS Furnace!



(Reproduction of 1/4 Page Advertisement in the Saturday Evening Post)

NATIONAL advertising creates a demand for the wonderful SUPER-SMOKELESS Furnace, brings new customers and sells more furnaces. And satisfied customers bring future business. The dealer who takes on this line now is sure to reap not only immediate business but also large future rewards.

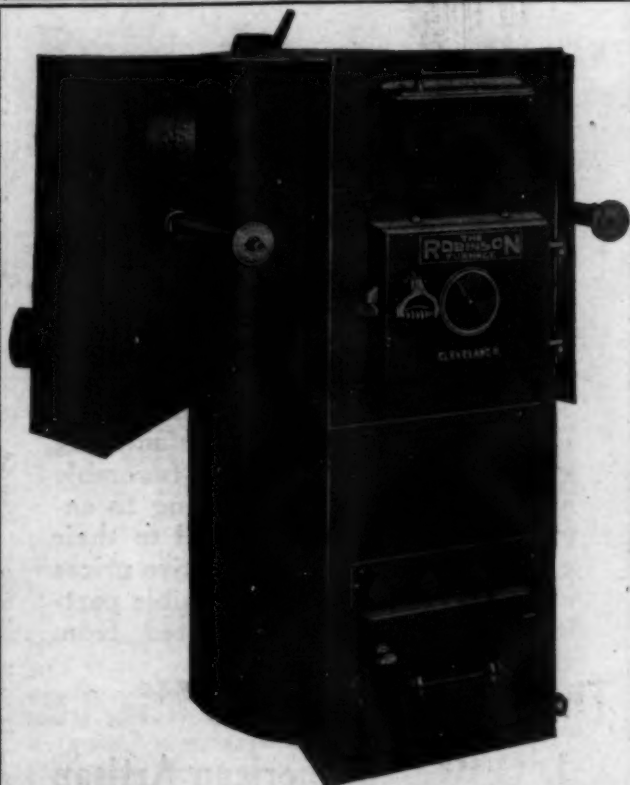
The SUPER-SMOKELESS Furnace offers to Home Owners many superior advantages unequalled in any other furnace. The dealer who sells them is in a distinct class—actually above competition. He can establish a bigger and better business and get good prices for his work.

Under our Utica Merchandising Plan, our representatives co-operate with our dealers and help them sell the furnaces they buy. This plan is a proved success and brings new customers—sells more furnaces—and increases your profits proportionately. It will pay you to write—without obligation to you—for full particulars about our Exclusive Dealer Proposition and Utica Merchandising Plan.

UTICA HEATER COMPANY

"Pioneers in Smokeless Combustion"

UTICA, N. Y.—CHICAGO, ILL.



WE WERE FIRST

TO broadcast through Station WADC, Akron, Ohio, telling the world about the ROBINSON ALL STEEL FURNACE and the ROBINSON HEAT DISTRIBUTOR.

WE WERE FIRST TO GUARANTEE ROBINSON ALL STEEL FURNACE 10 YEARS

WHY ROBINSON ALL STEEL FURNACE was the first to place a 10 year guarantee upon their product. WHY? Because we have never built anything but a steel furnace.

ROBINSON knew 15 years ago "when the steel furnace was considered a joke by most manufacturers," that the STEEL FURNACE ELECTRICALLY WELDED was going to revolutionize the furnace industry, the answer is here, practically all the large furnace manufacturers are now making steel furnaces.

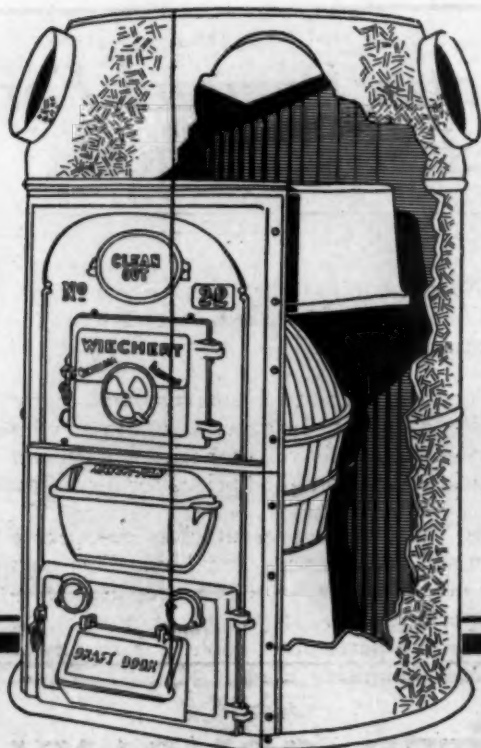
ROBINSON was right 15 years ago.

ROBINSON must be right now.

TUNE IN THURSDAY NIGHT BETWEEN 8 AND 9 O'CLOCK, STATION WADC, AKRON, OHIO. LISTEN TO THE ROBINSON ALL STEEL SERENADERS.

DEALERS: WHY TAKE A CHANCE ON A NEW STEEL FURNACE WHEN YOU CAN SELL THE OLD ESTABLISHED ROBINSON LINE?

THE A. H. ROBINSON COMPANY
5103 DETROIT AVENUE
CLEVELAND, OHIO



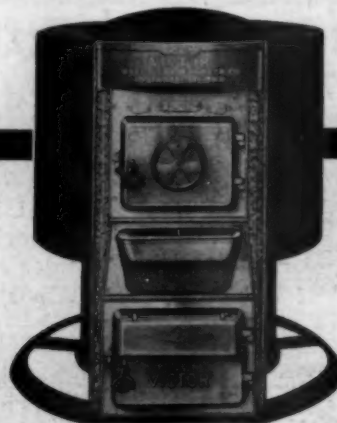
Tell your customers this!

The No. 20 Series Wiechert radiator is a hollow iron casting which exposes a double heating area to absorb heat from the smoke and gases as they circulate towards the flue. Thus, the Wiechert radiator utilizes a far greater amount of heat from the fuel burned than the ordinary furnace does—a saving in the coal bill. Explain how sturdily it is constructed—how it stands slam-bang treatment and how low priced it is. Then close the sale—and you've a good cash profit, established another point of good will—for Wiechert Furnaces always satisfy.

St. Clair Foundry Corp.
Centralia, Illinois



THE NEW VICTOR BOILER-PLATE FURNACE



a better heater, because—

Victor Boiler-Plate Furnaces with Intercepting Heat Conveyors—a new, improved radiator design (patented January 2, 1923)—use twenty percent. less fuel (by test).

The improved radiator delivers air at much higher temperatures; delivers a much greater volume of air because the air travel is much faster and unobstructed; and prevents waste of heat in the furnace room. Victor Boiler-Plate Construction means a clean furnace—gas-tight, smoke-tight and dust-tight.

Good dealers can make more sales with this better furnace. Write for our dealer proposition.

See our Louisville Show Display—Kentucky Hotel, May 24 to 28

HALL-NEAL FURNACE COMPANY
1322 North Capitol Avenue Indianapolis
Builders of Victor Furnaces for a Quarter Century

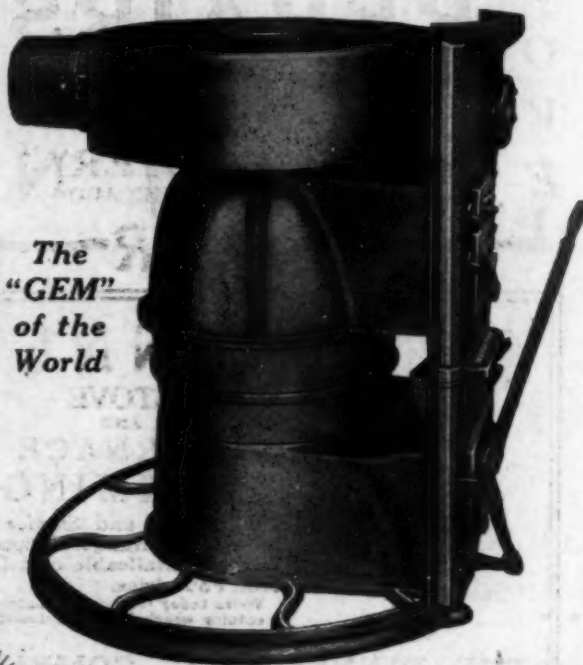
FOR SALE

A MANUFACTURER and Merchandiser of Stove and Furnace repair parts having to vacate the premises now occupied, has concluded to retire from business and offers for sale his entire and extensive equipment of patterns, also stock of Stove and Furnace repair parts. Everything in good manufacturing and merchantable shape. A favorable opportunity for those desiring to engage in the business or add to their existing equipment. Attractive prices and liberal terms to responsible parties. Correspondence solicited from those interested.

Address

J. Q. W. % American Artisan
620 S. Michigan Avenue, Chicago, Illinois

Don't Let Competition Worry You



The
"GEM"
of the
World

If you know quality furnace construction when you see it and know furnace prices you'll see why the "GEM" is the

BIGGEST SALES PRODUCER ON THE MARKET TODAY

SEE the smoothness of "GEM" castings, test the quality of the iron used, study the "GEM'S" scientific and OVERSIZE design, measure its immense heating surface and the spacing for air travel and you'll see some mighty big and practical selling features.

"GEM" Radiator is one-piece—absolutely uniform in thickness and soundness throughout because it is made by a special new green sand core method of molding.

Other features are one-piece solid base with solid one-piece base ring attached, clinker proof grates, convenient lever shaker handle and large, perfect-fitting doors.

You don't have to worry about competition if you sell the "GEM." Its price is the most economical ever heard of for this high trade, up-to-date quality.

ROBINSON FURNACE CO.
205 West Lake Street Chicago, Ill.

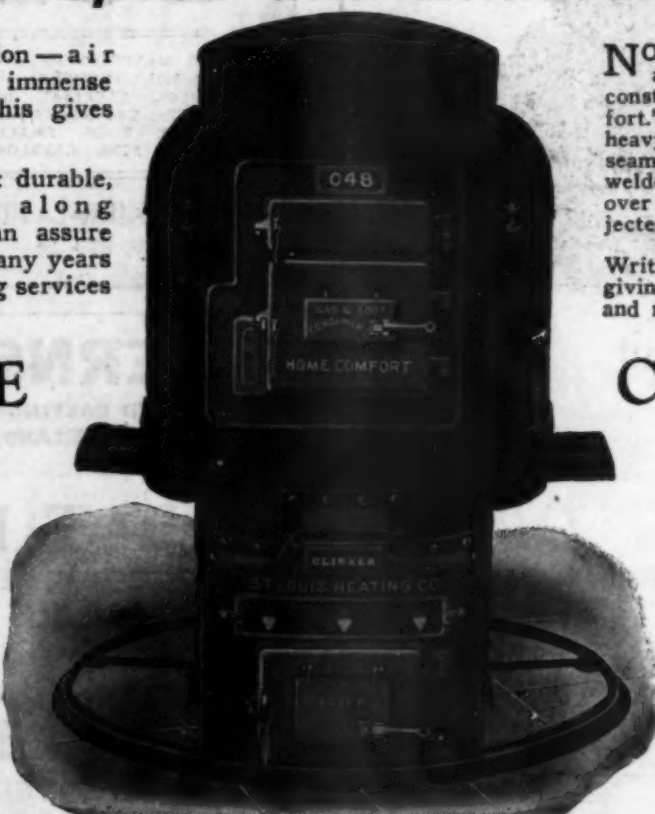
Built for Speed and Endurance, Too—

STEEL construction—air tight and with immense radiating surface—this gives quick heating.

But be sure you get durable, sturdy construction along with steel. You can assure your customers of many years of real severe heating services with the

"HOME

"HOME COMFORT" Steel Furnaces are sold only to the trade—The agency is an assured money maker. Let us outline the Home Comfort Agency plan to you now. Write for our booklet "The Joy of Home Comfort."



NOTICE the large double doors and the solid, sound front construction on the "Home Comfort." The dome is one piece heavy gauge steel plate. The one seam is tight riveted practically welded and is in front directly over the feed door where it is subjected to the least heat.

Write today for complete catalog giving full detailed information and numerous illustrations.

COMFORT"

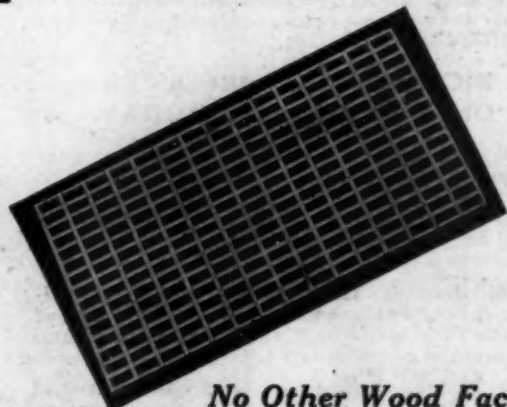
**ST. LOUIS
HEATING
COMPANY**

2901-11 Elliot Avenue
St. Louis, Missouri

PITTSBURGH DISTRIBUTOR
Wagner Bros., 3405 East Street

PEORIA

Wood Faces



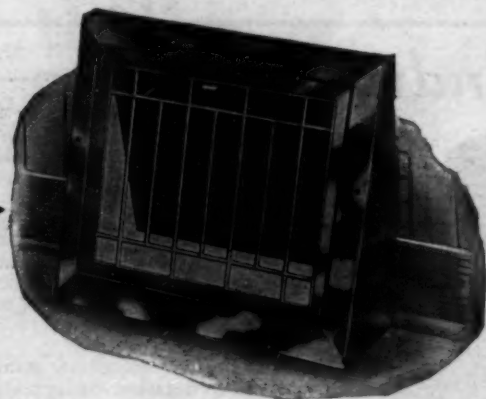
**No Other Wood Faces
Are Made Like Peoria Wood Faces**

SPECIALLY designed machinery is used in the manufacture of Peoria Wood Registers. This gives them a *perfection* never before obtained in Wood Faces.

Only the best grades of wood can be used in Peoria Wood Faces because of their special method of manufacture. Peoria Wood Faces are always level—always tight—always properly glued and set—they are *unbeatably strong*.

Write today for circulars and prices

PEORIA WOOD REGISTER CO.
PEORIA, ILLINOIS



Yes, we admit

*it's Attractive
it's Efficient
it's Economical
it's the Vol-Yum register*

**for volume Furnacework
for volume Profits.**

Mail coupon today for interesting prices and information.

Rock Island Register Co.,
Rock Island, Ill.

YOU may send your interesting prices and information on Vol-Yum registers.

Name

Street No.

City and State.....

FURNACE

STOVE

**GUARANTEED
PERFECT FIT
REPAIRS**

Large Complete Stock
Accurate Prompt Service

NORTHWESTERN
STOVE REPAIR CO., CHICAGO

BOILER



FANNER

STOVE
AND
FURNACE
TRIMMINGS

For Quality and Service use
Fanner Trimmings. We operate
our own Malleable and Gray
Iron Foundries.
Write today for latest illustrated
catalog which lists and describes
our complete line.

THE FANNER MFG. COMPANY
BROOKSIDE PARK CLEVELAND, OHIO

BOLTS

WE MANUFACTURE A COMPLETE LINE
OF BOLT PRODUCTS, INCLUDING STOVE
BOLTS, CARRIAGE BOLTS, MACHINE
BOLTS, LAG BOLTS, NUTS, ETC. ALSO
STOVE RODS, SMALL RIVETS AND
HINGE PINS, CATALOG ON REQUEST.

THE KIRK-LATTY MFG. CO.
1971 W. 85th St. Cleveland, O.

**PATTERNS FOR STOVES
AND HEATERS**
THE CLEVELAND CASTINGS PATTERN COMPANY
CLEVELAND, OHIO

PATTERNS
FOR STOVES AND HEATERS FIRST-CLASS
IN WOOD and IRON
VEDDER PATTERN WORKS ESTABLISHED 1835 TROY, N. Y.

**IRON AND WOOD
STOVE PATTERNS**
QUINCY PATTERN COMPANY
QUINCY, ILLINOIS





THE REAL BUILDING SEASON HAS OPENED!

FROM now on, for several months,
you will be installing furnaces.

You will want your fittings and supplies to reach you promptly.

You will want to KNOW that every item you use is "there to stay"—to last as long as the building they go into.

You will be assured of both if you

USE HANDY PIPE

F. MEYER & BRO. CO.

1311-13 S. Adams St.

Peoria, Illinois

Mention AMERICAN ARTISAN in your reply—Thank you!










Published to serve
the
Warm Air Furnace,
Sheet Metal, Roofing,
Stove and Hardware
Industries

Founded 1880

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EDITORIAL AND ADVERTISING STAFF

Etta Cohn
J. F. Johnson

G. J. Duerr
Frank McElwain

Eastern Representative: W. C. White, 1478 Broadway, New York City

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AN ACHIEVEMENT

An explanatory note regarding service to readers of AMERICAN ARTISAN. This paper is now nearing the completion of a half century of service. For almost fifty years it has catered to the needs of the men in the industries which it represents. At no time during its long and successful career has AMERICAN ARTISAN been in a better position to render complete, adequate service to its readers than it is today. In addition to the matter contained in our regular weekly publication, we maintain Service Departments for the use of our readers. If you have a problem to solve, we courteously invite you to submit it to us for solution. In what better way can we learn of your problems than from you direct?

The Convention of The National Association of Sheet Metal Contractors

Louisville, Kentucky, May 24 to 28

will be reported (as usual) in full detail in AMERICAN ARTISAN
issue of

May 29th

This Convention promises to be one of the most valuable and best attended National Sheet Metal Conventions on record.

The story of this Convention will be of special interest to every live sheet metal contractor and warm air furnace dealer in the country and they will look to AMERICAN ARTISAN for the earliest and most complete report.

Manufacturers and Jobbers will find the May 29th issue of AMERICAN ARTISAN, carrying this Convention report, *an especially desirable number* for reaching the most worthwhile buyers.

**Use additional advertising space
in this issue—send the order
blank attached.**

**We will be represented in your
May 29th**

**NATIONAL SHEET METAL CONTRACTORS'
ANNUAL CONVENTION ISSUE**

Reserve Space Checked

- ☐ Double page 2 colors
- ☐ Double page 1 color
- ☐ One page 2 colors

- ☐ One page 1 color
- ☐ One-half page 2 colors
- ☐ One-half page 1 color

- ☐ We will send copy and cuts.
- ☐ You are to submit copy.
- ☐ Send us detailed information regarding American Artisan and its result producing powers.

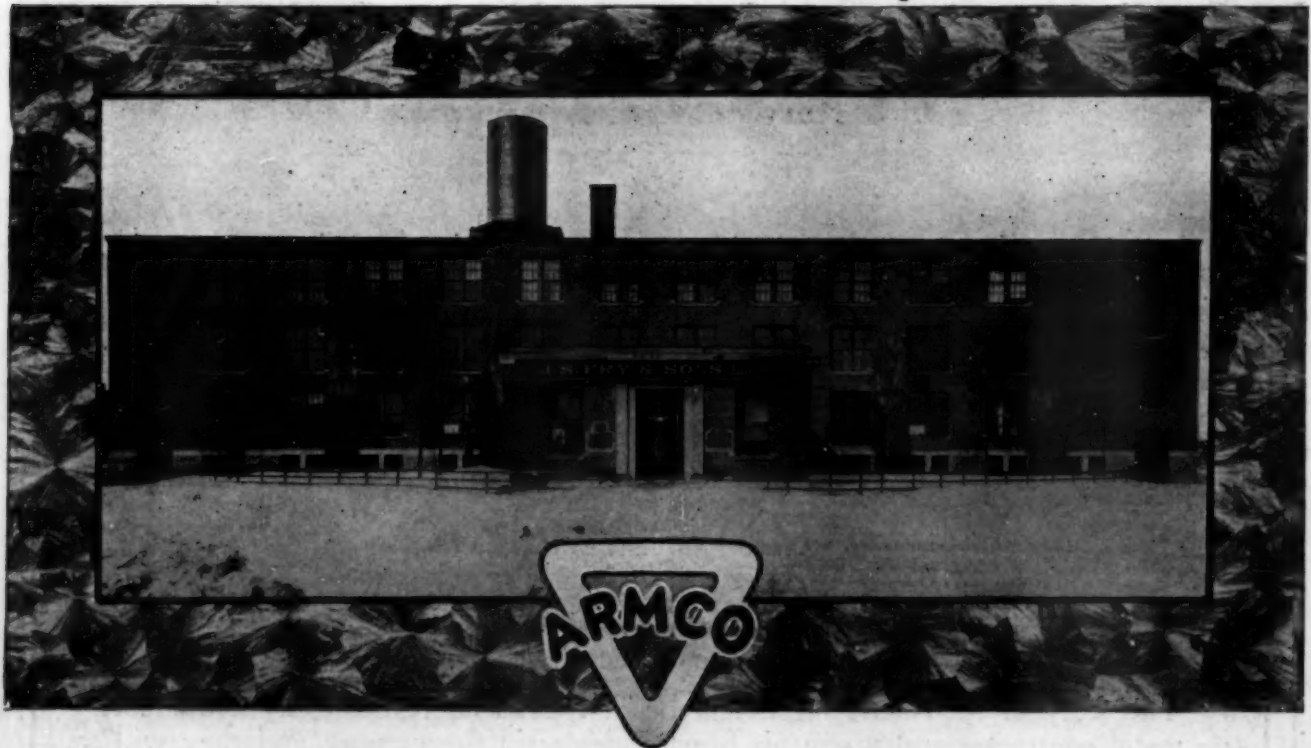
Signed _____

Address _____

AMERICAN ARTISAN

620 South Michigan Avenue

Chicago, Illinois



ARMCO Ingot Iron Roof flashing, downspouts, skylights and ventilator ducts for this Canadian factory, J. S. Fry & Sons, Ltd., were formed easily and installed quickly according to Watson-Rolland Specialty Company, of Montreal, Canada, who did the job

How ARMCO Ingot Iron Saved Time and Labor Cost on this Job

TO determine the "time and cost" difference between ARMCO Ingot Iron and ordinary steel, the contractors who installed all sheet metal work in the building pictured above, kept a special record of the job.

When the work had been completed these records revealed that the easy working qualities of ARMCO Ingot Iron had more than offset the lower first cost of ordinary steel.

Time and labor costs were saved, the contractor's natural pride in good work was satisfied, and the customer

was assured a durable, rust-resisting job.

Thousands of contractors are making more profits than ever before—by recommending and using ARMCO Ingot Iron.

If you are interested in Bigger and Better Profits write today for a copy of our new booklet, "Facts Justifying the Adoption of ARMCO Ingot Iron." It's free for the asking.

**The American Rolling Mill Company
Middletown, Ohio**

Export: The ARMCO International Corp.
Cable Address: — ARMCO, Middletown

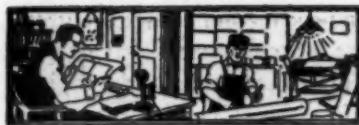
ARMCO

TRADE MARK

INGOT IRON

The Purest Iron Made

Mention AMERICAN ARTISAN in your reply—Thank you!



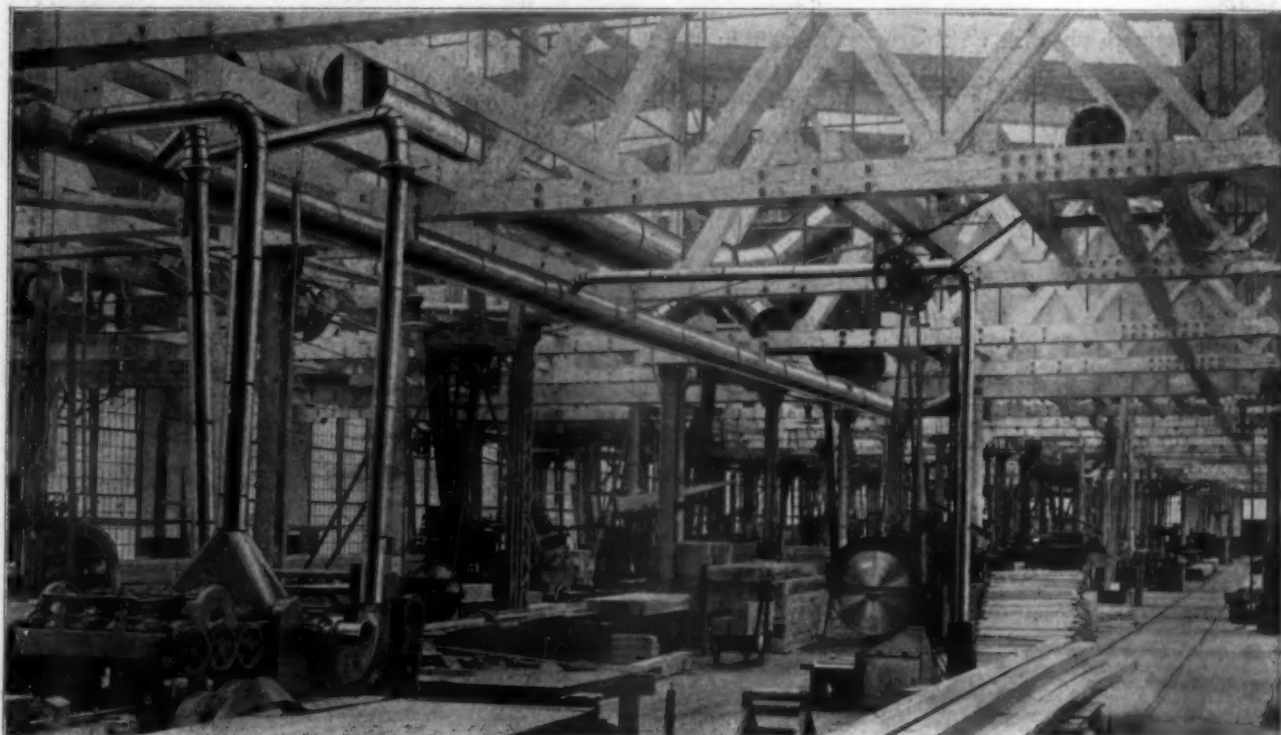
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Vol. 91.

CHICAGO, MAY 15, 1926

No. 20.



Sheet Metal Collecting and Conveying System Installed in the Angus Work Shop of the Canadian Pacific Rail Road, Montreal, Canada, by the B. F. Sturtevant Company, Boston

Installation Principles of Exhaust Systems for Wood-Working Machines

Outlines Systems Commonly Found in Factories in Wood-Working Industry

By S. M. TONNESEN, Manager Conveying Department, B. F. Sturtevant Company

THE practical application of an exhaust system dates back to the early sixties when Mr. B. F. Sturtevant invented a shoe buffing machine. His employees objected so strenuously however to the use of this machine on account of the tremendous amount of dust that was created that he started to search for a remedy to overcome this dust nuisance.

This resulted in his building a small exhaust fan which he connected to the buffing machine by means of sheet metal hoods. He found

that he could draw away the particles of leather and dust before they had a chance of escaping into the room leaving the atmosphere clean and healthy. As this was the first practical and satisfactory exhaust system put into operation it might be considered as being the father of all the exhaust systems in use today.

One of the largest applications of the exhaust system is found in the wood-working industries, systems for this application being commonly called blow pipe systems which the writer will attempt to outline. It is

almost impossible to draw up any hard and fast set of rules and regulations that will be found to be applicable to all conditions and territories even in this one industry.

The exhaust or blow pipe system not only adds to the comfort and safety of the workmen in a wood-working plant, but if well and properly designed, may be made to yield the manufacturer large dividends.

Such tremendous quantities of shavings, chips and sawdust are made by the modern high-speed wood-working machines that unless

some method is employed to remove this material, it would soon clutter up the machines and surrounding floor space, which would necessitate frequent stops to clean the machines and clear away the refuse.

An exhaust system lends itself most readily to this application.

It will automatically pick up this material before it has an opportunity to settle on the machine or floor and carry it to a suitable receptacle

In some sections there is a ready market for the shavings and sawdust and this can be sold at a profit.

The removal of the refuse from the building also lessens the fire hazard as the material is usually light and bulky and constitutes a considerable fire hazard if allowed to remain in the buildings. Accidents are also reduced by keeping the machines and working space clean, avoiding the necessity of

able to pick up and collect the great amount of chips and shavings as fast as they are made by the rapidly revolving knives and cutters.

A number of other points must also be considered in order for the system to be of proper design, some of which are as follows:

1. Design of which must be such that it will not interfere with the operation or access to working parts of this machine.



Extensive Dust Collecting System Installed on the Roof of the Excel Shoe Form Company's Plant, Lynn, Massachusetts.

or direct to the boilers where it can be used as fuel in place of coal.

The manufacturer is saving the labor item necessary to clean the machines and cart away the refuse and also saving on the fuel bill where the material is used as fuel.

cleaning the machines while in operation and preventing injury from flying chips.

In wood-working systems more exacting requirements must be met than in the ordinary dust collecting system, as here the system must be

2. It should not interfere with the movements of workmen.

3. System should not increase the fire risk.

4. Design should be as efficient in power consumption as possible, as power is costly.

5. In cold climates it should not remove more air than necessary from the buildings.

6. Where power is cheap it is desirable to keep the first cost low, even at a slight sacrifice in efficiency in the matter of power required to operate.

Certain quantities must be arbitrarily chosen in the design of each wood-working system, as each installation presents special problems for which it is impossible to lay down any hard and fast set of rules, and the designer must be guided largely by his past experience and skill in choosing these arbitrary quantities.

In order to lay out an efficient

Formulas and Tables for Computing Exhaust Systems for Wood Working Plants

Cubic feet of air handled per minute through average collecting hoods. Based on co-efficient at orifice of .71 with 10 per cent added for leakage.

Diameter of Connection Pipe Inches	1	1½	2	2½	3	4	5
1½	38	47	54	61	67	76	86
2	68	84	97	108	118	136	153
2½	107	131	161	168	185	214	238
3	153	188	217	243	266	306	343
3½	209	256	296	330	362	418	466
4	273	334	386	431	473	546	609
4½	345	423	488	546	598	690	775
5	427	523	605	676	741	854	955
6	614	751	867	970	1062	1228	1373
7	835	1023	1181	1322	1448	1670	1870
8	1092	1337	1546	1727	1892	2184	2440
9	1381	1694	1953	2184	2387	2762	3091
10	1705	2090	2409	2695	2959	3410	3806

Collector Resistance— $R-C(V)^2$

(1000)

R=The collector resistance in inches of water.

V=Air velocity in feet per minute at collector inlet.

C=Is a constant whose value depends upon the type and construction of the collector and usually ranges from .1 to .2.

system in a wood-working plant the designer must have a clear understanding of the particular requirements of the installation, the class of work they are doing in the plant, kind of lumber they are handling, the number, size, and type of machines to be taken care of and also their location in the plant, whether the refuse is to be used as fuel, if material is to be conveyed to boiler room or storage vault or both.

If these preliminary points are determined, the designer can begin to lay out a system. This will consist of choosing the number and size of connections to the individual machines, and sizes of branch and main pipes. Here is where his past experience becomes of great value, as no set of standards can be set that will apply to all conditions, as the pipe sizes are checked to a great extent by local conditions of the individual problem at hand, he must base his judgment largely on his past experience with similar problems. The size of connections will vary with the quantity of shavings made, the kind of lumber, whether wet or dry, and the speed of the cutters.

The main pipe will vary in diameter, increasing in size from the dead end, and are usually chosen of such size that the area at any given point will be 20 to 25 per cent in excess of the sum of the area of the branches entering between that point and dead end of the system, floor sweeps not being taken into account if provided with suitable blast gates. Sizes of mains can also be determined by figuring them of such size as to keep the air velocity constant through their length. Air velocity in planing mill work ranges from 2,500 to 5,000 feet per minute, depending on the class of work to be handled.

Velocity for handling light shavings or sawdust from dry wood is usually chosen between 2,500 and 3,000 feet per minute. Velocity for heavy shavings and sawdust will usually be around 3,000 to 4,000 feet per minute. Hog waste and pulp chips require a velocity of from 4,000 to 5,000 feet per minute.

When choosing sizes of main, the designer must also have in mind if all machines are operated simultaneously or if only part is operated at a time. He must choose his pipe sizes so that the air velocity at no time

allow a factor of safety for such contingencies as at times may occur when some machines may be shut off. If this is not taken into consideration when system is designed, trouble might occur.



Planing Mill Exhaust System Installed in the Angus Shops of the Canadian Pacific Rail Road Company, Montreal—Cut Shows Sheet Metal Ducts which Carry Planings to Fireboxes of Boilers

will be so low at any one point that it will not be sufficient to carry the material, as otherwise the material will collect at these points and eventually clog the system.

Therefore it is sometimes desirable to use a velocity higher than necessary to move the material to

As the horsepower required to drive the exhaust fan is proportional to the volume of air handled and the frictional resistance of the system, it is desirable from an operating standpoint to have as large pipes as possible. As the friction of a round pipe varies proportional to

the fifth power of the diameter of the pipe, it is readily seen that only a small reduction in pipe size means a considerable increase in resistance, and while the larger pipe allows the handling of a larger volume of air, the friction will be so much less that it will affect a considerable saving in horsepower. As stated above the pipe sizes must not be increased to a point where the velocity will be so low that there will be any danger of the material settling in the pipes and clogging the system. After the branch pipes and mains are determined, the size of fan must be

the area of a pipe of the same diameter in inches as the nominal size of the collector. This method of choosing the size of collector, however, is not very good practice, unless due consideration is given to the other general dimensions and proportions as some makes are smaller than others for the same nominal size.

The suction required at the hoods will vary from $1\frac{1}{2}$ to 5 inches of water, depending on the class of work, material to be handled, size, and general shape of the hoods, etc.

The volume of air to be handled, resistance of the system, speed of

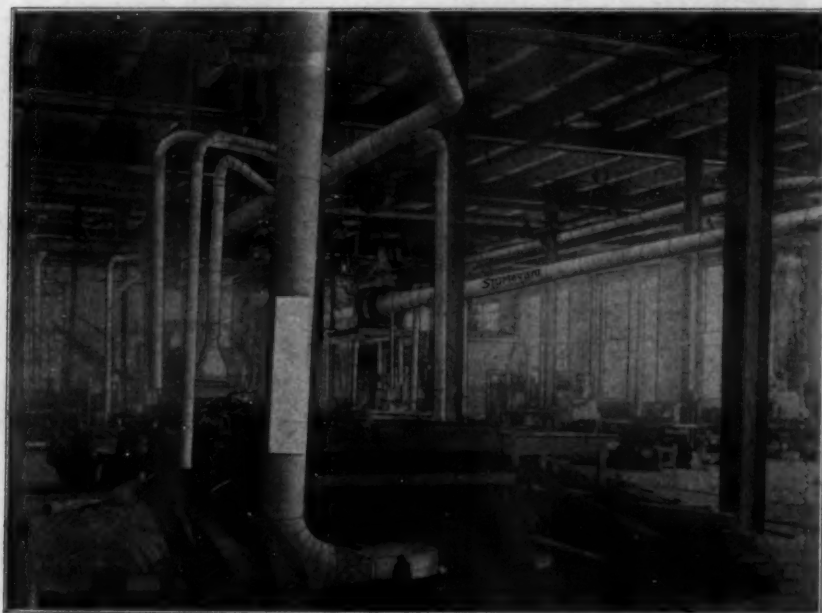
effect as possible, in order to prevent the forming of eddy currents.

Top and side hoods require telescope or slip joints so that the heads can be removed and also be provided with ball joints so that they can follow the cutter without interfering with the machines. The hoods are usually constructed of galvanized sheet iron thickness depending on the size and stiffness needed, but should not be less than No. 22 gauge. For heavy machines they are usually made of No. 16 or 18 gauge. Edges should be bound by wire or band iron not only for stiffness, but also to prevent the operator being cut on the edges which would otherwise be sharp.

There are machines which it is impractical to hood in. In those cases floor sweeps should be placed near them. Floor sweeps should also be attached to bottom heads of moulders and similar machines.

Floor sweeps should be arranged so that the material must be lifted into them by suction to prevent large blocks and other heavy articles being swept into this system possibly getting into the fan and doing serious damage. The ducts or conveying pipes are usually made of galvanized iron thickness depending on the diameter varying from No. 24 to 14 gauge and should be smooth and free of obstructions on which the material may catch. Circular joints should be lap jointed, riveted and soldered, and longitudinal joints either grooved and locked or riveted and soldered. Main pipes should be made as short and straight as possible and dead ends capped to permit inspection and cleaning out if necessary. Branch pipes should enter the mains at an acute angle and should be connected to the mains at side and top, never at bottom. Two branches should never be connected directly opposite each other. Each branch should be equipped with dampers or blast gates.

Very rugged and substantially built fans are required for this work. They are commonly known as planing mill exhausters. These fans must stand up under the severe strain and blows of having large



General View of Collecting and Conveying System and Double Planing Mill Exhausts Made of Sheet Metal and Installed in the Carpenter Shop of the B. & M. R. R. Car Shops, North Billerica, Massachusetts

selected. This is usually chosen of such size that the inlet is of the same or greater diameter than the main to which it is connected. If the system must be designed for as low power consumption as possible, it is usually found that the fan having an inlet area of 25 to 50 per cent greater than the main will work to the best economy.

The discharge pipes are usually made of the same diameter as the main suction pipe. The size of collector will be the next item to determine. It is quite customary to choose this of the same nominal size as the diameter of the discharge pipe leading to it, the area of the inlet of the collector usually being equal to

the fan, horsepower to drive the fan, is best determined by engineering formulas and friction tables giving friction losses for various velocities for different size pipes for a given length. Design of the hoods is very important and also their general construction. They must be designed so as to guide the chips and refuse into the pipe system which should be so constructed that the action of the knives and cutters will assist the air in getting the chips and refuse into the system.

The hoods should also be made so as to fit the various heads as closely as possible without interfering with the work and yet maintain as much of the so-called stream line

knots and slivers of wood hit the blades which in a number of instances has a peripheral speed of over a mile a minute. Casings usually are made of heavy steel plate substantially braced with angle irons.

Belt drive is preferred to direct connection to motor. This gives more flexibility and ease with which the speed can be changed if it is found that additions have to be made to the system, and consequently changed operating conditions. For handling very long shavings or stringy materials special blast wheels of the open or non-shocking type should always be used. Dust collectors usually employed in the wood working systems are of the cyclone or centrifugal type and mixture of air and shavings and sawdust being introduced into the collector at a tangent near the cylindrical top setting up a whirling motion tending to make the heavier material spiral down to the bottom or tail piece while the air escapes out through the stack at the top of collector. Where the refuse is used for fuel a collector is usually placed so that any excess material may be diverted to the reserve bin by means of the switch or valve. Furnace feeders should be hinged so that they may be disconnected from the furnace when the fan is not being operated.

The average exhaust system receives but little attention due to the simplicity of its operation. To obtain the best results however, it should be inspected at suitable intervals and adjustments made if necessary. The exhaust fans should be given proper care the same as any other high-speed machines and kept in proper alignment and tightly bolted to its foundation. The casual observer of an exhaust system rarely comprehends the amount of complicated engineering involved in the design of a properly designed and constructed system and while the system designed by an inexperienced designer may possibly do the work, it would most likely be found that a considerable saving could be affected by a more properly designed system. As a system that will give a maximum of efficiency at

a minimum of operating expense can only be obtained by being carefully designed and this being based on correct theory and sound practical experience of the designer.

Size Connection for Woodworking Machinery

The following table is intended to give a general idea of the size connections often used with woodworking machinery. This table, however,

Double End Tenoners	7
Double End Double Head Tenoners	10
Planers, Matchers, Moulders, Sticklers, Jointers, etc.:	
With Knives 6-10"	5-6
With Knives 10-20"	6-8
With Knives 20-30"	6-10
Shapers, Light Work	4-5
Shapers, Heavy Work	8
Spindle Carver	4-5
Belt Sander, belt less than 6" wide	4½
Belt Sander, belt less than 6-10" wide	5
Belt Sander, belt less than 12-14" wide	6

Frictional Resistance of Straight Conveyor Pipe

Vel. of Air in Feet per Min.	To Flow of Air Per 100 Feet of Pipe Loss of Pressure in Inches for Given Diameter Pipe						
	4"	5"	6"	7"	8"	10"	12"
2000	1.92	1.53	1.28	1.09	.962	.770	.640
2200	2.32	1.85	1.55	1.32	1.16	.932	.778
2400	2.77	2.22	1.84	1.58	1.39	1.01	.924
2600	3.26	2.60	2.17	1.86	1.63	1.30	1.08
2800	3.76	3.01	2.52	2.15	1.89	1.51	1.26
3000	4.33	3.46	2.88	2.47	2.08	1.73	1.44
3200	4.93	3.94	3.28	2.82	2.47	1.97	1.64
3400	5.56	4.45	3.71	3.18	2.78	2.22	1.85
3600	6.23	4.98	4.15	3.56	3.12	2.49	2.08
3800	6.95	5.55	4.62	3.97	3.48	2.78	2.32
4000	7.69	6.15	5.13	4.40	3.85	3.08	2.57
4200	8.48	6.78	5.65	4.85	4.25	3.49	2.83
4400	9.26	7.41	6.18	5.30	4.63	3.71	3.09
4800	11.05	8.85	7.38	6.32	5.55	4.43	3.69
5200	13.00	10.50	8.66	7.44	6.50	5.21	4.34
5600	15.25	12.05	10.05	8.61	7.55	6.03	5.05
6000	17.30	13.85	11.52	9.89	8.66	6.92	5.76
	14"	16"	18"	20"	22"	24"	30"
2000	.550	.482	.428	.385	.350	.320	.257
2200	.655	.582	.578	.465	.423	.388	.310
2400	.790	.693	.617	.553	.504	.462	.369
2600	.930	.810	.722	.650	.590	.542	.434
2800	1.07	.932	.838	.754	.685	.628	.503
3000	1.24	1.08	.961	.865	.788	.722	.577
3200	1.41	1.23	1.09	.985	.895	.820	.657
3400	1.59	1.43	1.24	1.11	1.01	.925	.742
3600	1.78	1.56	1.38	1.25	1.13	1.04	.832
3800	1.99	1.74	1.54	1.39	1.26	1.16	.926
4000	2.20	1.92	1.71	1.54	1.40	1.28	1.03
4200	2.43	2.12	1.88	1.70	1.54	1.42	1.13
4400	2.66	2.33	2.06	1.85	1.68	1.54	1.24
4800	3.17	2.77	2.46	2.22	2.02	1.85	1.48
5200	3.72	3.25	2.89	2.61	2.36	2.16	1.75
5600	4.32	3.78	3.35	3.02	2.74	2.52	2.01
6000	4.95	4.33	3.85	3.46	3.14	2.89	2.31

Frictional Resistance of Elbows

Elbows having a radius equal to the pipe diameter set up a resistance equivalent to a section of straight pipe approximately 10 diameters long. With a radius of 1½ times the diameter the resistance is about the same as seven diameters of straight pipe.

should be used only as a guide as the proper size connections for a given installation depend upon many factors such as quantity of material, kind of lumber, its condition, whether wet or dry, rate of feed, etc.

Type of Machine and Diameter of Connections

	Inches
Circular Saws 12" diam.	4
Circular Saws 12-24" diam.	5
Circular Saws 24-40" diam.	6
Band Saws, blade under 2" wide ..	4
Band Saws, blade under 2-3" wide	5
Band Saws, blade under 3-4" wide	6
Band Saws, blade under 4-5" wide	7
Band Saws, blade under 6-7" wide	8
Small Mortisers	6
Single End Tenoners	6

Drum Sander 24"	4
Drum Sander 30"	5
Drum Sander 26"	6
Drum Sander 48"	8
Drum Sander over 48"	10
Disc Sander 24" diam.	5
Disc Sander 26-36" diam.	6
Disc Sander 36-48" diam.	7
Arm Sander	4

Wants Repairs for "Majestic" Cream Separator

TO AMERICAN ARTISAN:

Can you tell me where to get repairs for the "Majestic" cream separator?

Very truly yours,

CHARLES W. JOHNSON.

Experts of the United States Bureau of Standards Make Comparative Tests of 16-inch Roof Ventilators

Their Experiments Were Restricted to a Study of the Two Most Important Factors Affecting the Performance of a Ventilator

It is generally conceded that the United States Bureau of Standards, Washington, D. C., is at once the most practical and scientific institution of its kind in the world.

Consequently, full confidence can be placed in the findings of its experiments.

For that reason, unusual importance attaches to the subjoined article by H. L. Dryden, W. F. Stutz, and R. H. Heald of the United States Bureau of Standards.

It gives the results of some comparative tests of 16-inch roof ventilators, and is reproduced from the Journal of the American Society of Heating and Ventilating Engineers:

During the summer of 1920 a study of some fifty 16-inch ventilators was made at the Bureau of Standards, the ventilators having been submitted by the Construction Division, Q. M. Corps, of the Army. The following paper gives a brief summary of some of the results of the study.

The factors affecting the performance of a ventilator and the things which must be taken into consideration in the choice of a ventilator are so numerous that it was impossible to attempt a complete study. We limited ourselves definitely to certain specific phases of the problem and it must be kept in mind that the tests about to be described are particular tests with a certain experimental arrangement. The question as to how far the results of these tests apply to any other arrangement is left open.

Our experiments were confined to questions concerning the volume of air exhausted per minute by the ventilators, which is dependent upon many factors. For example, if the air does not have free access to the room, little air will be exhausted.

If there are obstructions near the ventilator, the performance will be affected.

The most important factors, however, affecting the performance of a ventilator are (1) the difference in temperature between the air in the room and the air outside, and (2) the speed of the wind blowing across the top of the ventilator. Our experiments were restricted to these two factors.

The effect of a temperature dif-

We have received so many requests for copies of the article on comparative tests by U. S. Bureau of Standards, Washington, D. C., of 16-inch roof ventilators that we have decided to reprint the entire article for the benefit of our readers.

This article appeared originally in the July 2, 1921, issue of AMERICAN ARTISAN.

ference is to produce the familiar chimney action, an action common to all ventilators, including an open pipe.

The design of the ventilator affects the amount of air exhausted under a given temperature difference only insofar as more or less resistance is offered to the flow of air.

If the ventilator passage is obstructed, less air will be exhausted. From this standpoint, a straight open vertical pipe is the ideal ventilator, but considerations of weather-proofness prohibit its use.

The exhaust due to the wind depends primarily upon the design of the ventilator. Our first experiments were arranged so that the temperature at the entrance and exhaust were the same, so that there was no chimney action.

The wind was produced by one

of the wind tunnels of the Bureau of Standards. For the purpose of these tests the exhaust fan of the tunnel was removed and a blower fan substituted. By means of suitable honeycombs the velocity was made as nearly uniform as possible across the stream.

The ventilators were placed in front of the mouth of the tunnel on the end of a vertical pipe, the wind stream being horizontal. A horizontal pipe containing the measuring apparatus was joined to this vertical pipe by means of an elbow.

The speed of the wind was obtained from the readings of a tachometer connected to the shaft of the wind tunnel motor, the readings of the tachometer having been previously standardized in terms of an anemometer placed in the position later occupied by the ventilators.

The volume of air exhausted was obtained from the deflections of a small wire suspended freely in the horizontal pipe from a watch-bearing mounting. The wire anemometer was calibrated by comparison with an orifice meter.

Measurements were made of the volume of air exhausted per minute by the ventilators at wind speeds of 4, 8 and 12 miles per hour. For comparison, index numbers or wind ratings were obtained by expressing the volume exhausted through the open pipe in the same time at the same wind speed.

The wind rating of the open pipe is, therefore, 100 at all wind speeds. The accuracy of the measurements is about 5 per cent, and smaller differences in ratings are of no significance.

Some ventilators exhaust less air than an open pipe, some more; the best ventilators have a rating of 150, the exhaust being one and one-half

times as much as from an open pipe. The exhaust of an open pipe with the set-up used was about 250 cubic feet per minute for a wind speed of 10 miles per hour.

In addition to the measurements of the volume of air exhausted at varying wind speeds with no temperature difference, measurements were made of the flow of air

It is evident that if the fan is running at a uniform speed and the same flow is obtained with two different ventilators, the resistances of the two ventilators are equal and consequently under a given temperature difference the same volume of air per minute would be exhausted by the two ventilators.

If the flow through one ventilator

into those of stationary and rotary forms, but any further sub-division for purposes of discussion is difficult.

The simplest type of ventilator consists of a cap over the top of an open pipe with a band around pipe and cap to keep the rain from beating in. Such a ventilator exhausted 91 per cent as much air as an open pipe at the same wind velocity. In other words, it has a wind rating of 94. It permitted 86 per cent as much air to pass as an open pipe in the second experiment. This will be expressed by saying that the resistance rating is 86.

A simple modification of Number 2 is shown in ventilator 3EB (Figure 3) where a lip is placed on the pipe. This ventilator is very sensitive as regards its orientation relative to the wind. On introducing a smoke stream it was found that the air passing under the band separates into two parts, one part passing under the cap and diagonally out at the sides of the ventilator, the other passing underneath the lip and around the pipe.

The quantity of air going by the two routes depends on the orientation of the ventilator relative to the air stream. The results varied by about 10 per cent in different experiments, according to the orientation. This ventilator had a wind rating of 96 and a resistance rating of 88.

To investigate more fully the effect of the band, the band was lengthened as shown in modified Number 3AB (Figure 3) so as to extend a little below the lip. The wind rating increased from 96 to 130 and on an examination with a smoke stream it was found that no air entered the ventilator at all.

The air blowing on the ventilator passed underneath the lip, the ventilator exhausting all the way around. Ventilator Number 13AA (Figure 3) of somewhat similar construction, but of different proportions, had a wind rating 138 and a resistance rating 95.

Figures 3 and 4 show other modifications, some complicated and some simple. Number 21FI illus-

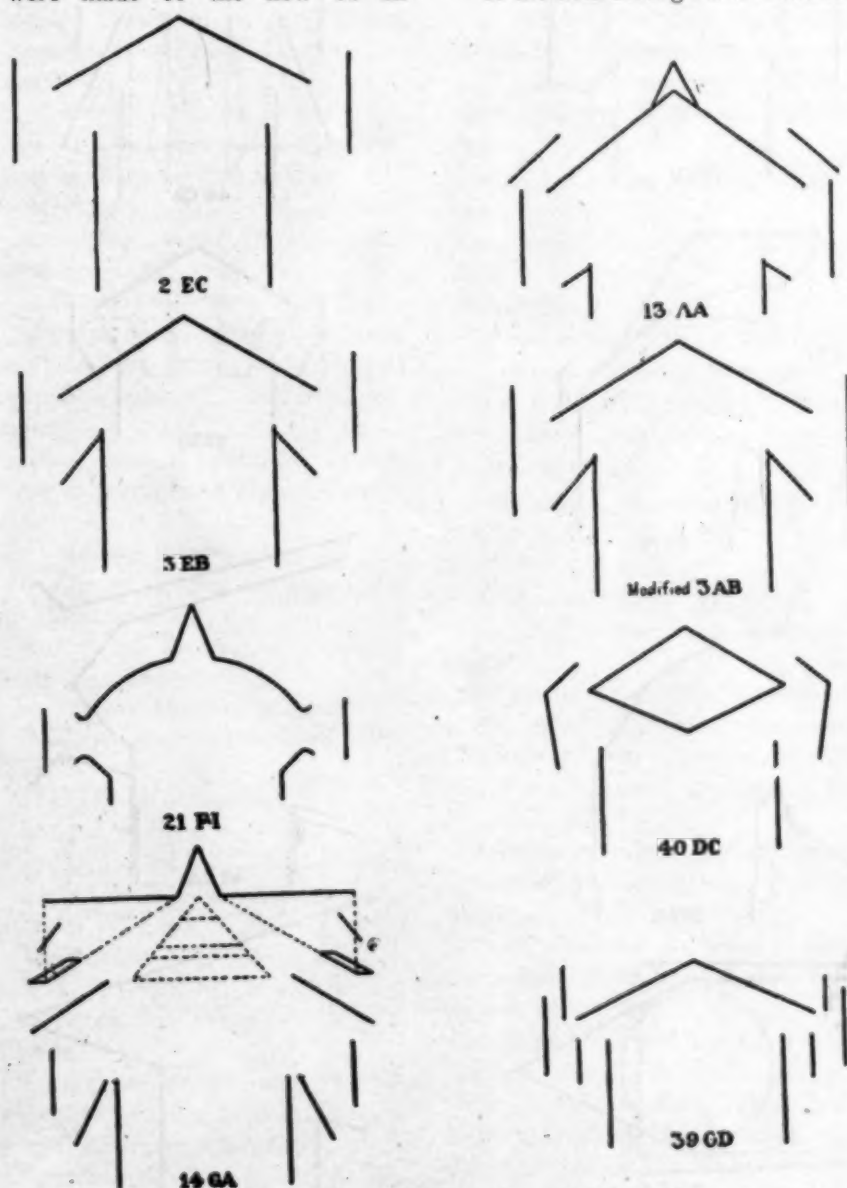


Figure 3—Specimen Types of Ventilators Tested

through the ventilators with a given difference in pressure in order to stimulate the effect of a difference in temperature between the air of a room and the air outside.

An electric fan was placed at the entrance of the ventilator pipe line and the volume of air per minute passing through the pipe was measured at various speeds of the fan.

is less, its resistance is greater and it would exhaust less air under the same temperature difference. Ratings were again made on the basis of the open pipe as 100. In these resistance ratings, 100 is the maximum attainable, since the resistance of the ventilator is added to that of the pipe.

Ventilators may readily be divided

trates the effect of making the openings in the ventilator too small for the air to pass out freely. Its resistance rating was 56, its wind rating 85.

Number 14GA illustrates a very complicated construction of low resistance, resistance rating 100, wind rating 73.

Number 39GD is another complicated one, resistance rating 75, wind rating 77. In the case of Number 29ED, extending the band below the lip increased the wind rating from 91 to 113. Its resistance rating was 78.

Number 48CB is better than the simple types Number 2EC and Number 3EB, but not as good as modified Number 3AB, its wind rating being 109 and its resistance rating 93.

Number 27FJ is another ventilator with small exit passage for the air, its resistance rating being 50 and its wind rating 80.

These ventilators are typical of the stationary ones and the surprising fact is that the best exhaust is obtained with a very simple construction.

Number 26FC (Figure 4) is a simple type of rotary ventilator consisting of an elbow with a wind vane to hold the opening away from the wind. Its wind rating was 87, resistance rating 83. Its resistance rating is low because of some large damper supports in the pipe which are not shown in the sketch.

Number 52AA differs from Number 26FC in that the pipe is free from obstruction and the air is deflected outward by means of a lip on the elbow. Its wind rating was 150, its resistance rating 95.

Number 30EA is another type in which air is permitted to pass through a passage in the ventilator. Its wind rating was 91. On stopping up the passage, the wind rating was increased to 135, so that the passage way is detrimental to the performance of this particular ventilator.

Number 42AA also has a passage-way for the air. Stopping up the passage had no effect on the wind rating, the rating remaining 149.

As a result of this observation we designed the simple form Number 54AA. This cone type had a wind rating 149, same as Number 42.

In conclusion, two points should be emphasized. The first is that no general statement can be made as to

effective way of obtaining a large volume of air exhaust is by making use of the region of low pressure produced at the back of a properly designed obstacle. It is best not to allow the air to enter the ventilator for it must then be exhausted and

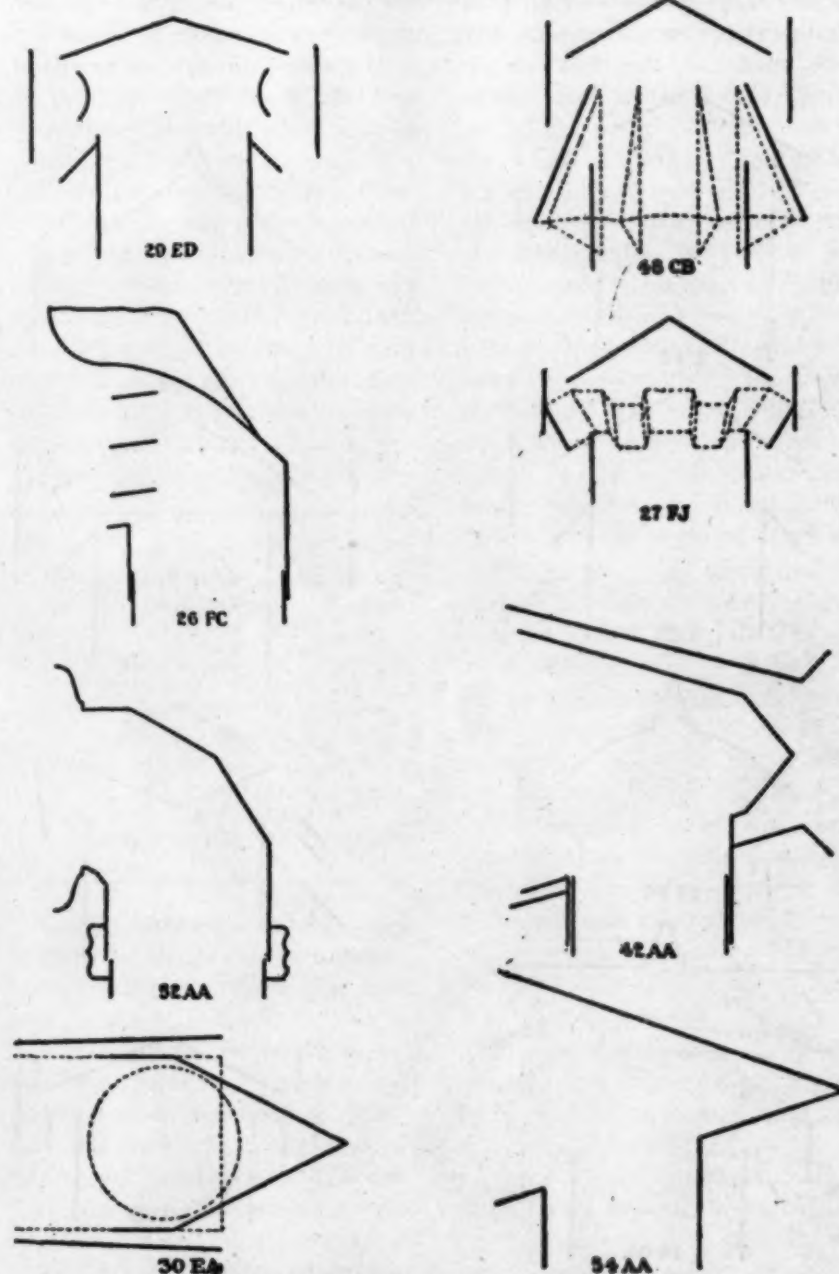


Figure 4—Specimen Types of Ventilators Tested

the relative merits of rotary and stationary, or mushroom and siphon, ventilators.

The performance depends on the particular models. It is possible to build a good stationary ventilator as well as a good rotary ventilator, and there are poor ventilators of each type.

The second point is that the most

will be exhausted at the expense of the air in the ventilator pipe.

The detailed results of the investigation are being prepared for publication by the Bureau of Standards as a technologic paper. We desire to acknowledge the efficient assistance of Messrs. R. D. Campbell and M. Temin in connection with the tests.

Program of National Sheet Metal Contractors' Convention, Louisville

Something of Interest Planned for Each Hour of Day Between May 24 and 28

THE following is an outline of the Louisville convention program as it will be carried out during the convention of the National Association of Sheet Metal Contractors:

Monday Morning, May 24

9:30 a. m. until noon. Registration of delegates and visitors.

Meeting of Trade Development Committee, George Harms, chairman, presiding.

Monday Afternoon, May 24

2:00 p. m. Conference of state and local secretaries with national secretary, Edwin L. Seabrook, presiding.

Trip through newspaper offices, *Courier Journal* and *Times*, *Herald-Post*.

Monday Evening, May 24

6:30 p. m. Dinner meeting, board of directors.

8:00 p. m. Meeting of Kentucky State Association.

Tuesday Morning, May 25

8:30 a. m. Registration until noon.

Opening of convention.

Song—America.

Invocation by Dr. C. W. Welsch. Song, Old Kentucky Home, quartette.

Welcome to Louisville by Honorable A. A. Will, Mayor.

Response by President W. C. Markle.

Turning convention over to the national association, Ferd F. Schupp, general chairman, officiating.

Appointment of committees to function during convention.

Address, "Co-operation makes better business," by E. S. Woosley.

Tuesday Afternoon, May 25

1:30 p. m. Report of credentials committee.

Report of national president, W. C. Markle.

Report of national secretary, E. L. Seabrook.

Report of national treasurer, Julius Gerock.

Election of nominating committee. Address, "Vocational Education," by Professor R. E. Daugherty.

Address, "The Sheet Metal Consciousness of Tomorrow's Men," by C. L. Bailey, field representative, sheet steel trade extension committee.

Reports of state and local associations.

Address, "Factory Branch versus Dealers' Installation," by L. Y. McAnney.

Question box.

Tuesday Evening, May 25

Get acquainted meeting at Kentucky Hotel. Entertainment. B. J. Jacobs, chairman.

Wednesday Morning, May 26

8:00 a. m. Assembly in hotel lobby for boat ride.

Session on steamer America.

Reading minutes of previous sessions.

Report of credentials committee.

Report of resolutions committee.

Address, "The National Warm Air Furnace Code," by Arthur P. Lamneck.

Address, "Cooperation versus Competition Lifting Up versus Breaking Down," by George L. Bennett, Director Building Trades Extension, Sheet Steel Trade Extension Committee.

Address, "Cooperation of Trade Journals," by E. A. Scott, Editor, Sheet Metal Worker; Miss Etta Cohn, AMERICAN ARTISAN; E. C. Carter, Furnaces and Sheet Metals.

Question Box.

Wednesday Afternoon, May 26

1:00 p. m. Lunch at grove.

Official convention picture.

Business session.

Report of Warm Air Furnace Committee, by E. B. Langenberg.

Report of Fire Prevention Committee, by John Bogenberger, Chairman.

Report of Slogan Committee, by N. A. Lichty, Chairman.

Report of Sheet Metal Cornice and Educational Publicity, by Paul L. Biersach.

Address, "One Hundred Per Cent Realization on Manufacturer's Cooperation," by W. J. F. Roll.

Question Box.

Wednesday Evening, May 26

8:00 p. m. Organization of the Mysterious Order of Metal Mecacos, sponsored by the New Orleans' Association of Sheet Metal Contractors.

Thursday Morning, May 27

9:30 a. m. Address, "The Responsibilities of the Mills, the Jobber, and the Sheet Metal Contractor," by Bennet Chapple.

Report of Resolution Committee.

Report of Trade Development Committee and the Prodigal Son, by George Harms, Chairman.

Report of Labor Committee, by William F. Angermeyer, Chairman.

Report, Overhead Expense, by Walter H. Tinney, Chairman.

Report of Trade Relations and Policy, by Edwin L. Seabrook, Chairman.

Report of Vocational Educational Committee, by Louis Luckhardt, Chairman.

Election of officers.

Selection of city for next convention.

Question Box.

1:30 p. m. Assembles at side entrance of hotel for automobile ride to points of interest.

Thursday Evening, May 27

7:00 p. m. *Sharp*. Banquet ball room Kentucky hotel, dancing entertainment.

Friday Morning, May 28

9:00 a. m. Call to order.

Report of Resolution Committee. Unfinished business.

New business.

Adjournment.

Friday Afternoon, May 28

Assemble at hotel lobby for conveyance at Jockey Club Race Track.

See the Sheet Metal Contractors' Handicap—a regular scheduled race.

Saturday Morning, May 29

7:30 a. m. Cave Trips. Wonderland Caverns. Mammoth Cave.

Ladies' Program

Monday, May 24th—Reception

Committee at Kentucky hotel. Trips through newspaper offices.

Tuesday Morning, May 25th—Attend opening session of convention at Kentucky hotel.

2:30 p. m.—Bunco party Elks Club.

8 p. m.—Entertainment Kentucky hotel.

All Day Wednesday, May 26th—Trip to Rose Island on steamer America.

Lunch at grove.

Wednesday, May 26th—Evening mystery party at Kentucky hotel.

Thursday morning, May 27th—10:00 a. m. Swimming party at Y. W. C. A.

12:15 a. m. Luncheon at Y. W. C. A.

Thursday afternoon, May 27th—Automobile ride through city.

Thursday evening, May 27th—7:00 p. m. sharp, banquet Kentucky hotel.

Friday morning, May 28th—Go as you please, committee to take visitors to Lemon's Silver Galleries.

Afternoon—Jockey Club Race Track. Evening open.

Saturday, May 29th—All day Cave trips.

Milwaukee Sheet Metal Men Hold Regular Monthly Meeting

The regular monthly meeting of the Master Sheet Metal Contractors' Association of Milwaukee, Wisconsin, was held on the evening of May 5, with President T. E. Tonnesenn presiding, according to Secretary A. R. Podolske.

The report of National Secretary was read and approved.

A motion made and carried that Jensen Furnace Company be removed from roster.

It was unanimously agreed to accept offer of cooperation of Sheet Steel Trade Extension Committee and have their representative address the meeting.

A motion was made and carried that the Secretary write all delinquent members.

A motion was made and carried that the following committee, R.

Jeske, Oscar Hoffman and Wm. Hammann work up wage scale blank.

A committee consisting of Paul Biersach, R. Jeske, E. B. Tonnsenn was appointed on telephone listings.

Unanimously carried to devote all of the time at the next meeting entirely to the furnace industry and Secretary instructed to notify all members to this effect.

Motion made and carried that correspondence read by Secretary to improve furnace installations be placed on file.

Secretary instructed to write the Common Council as to the date when wage scales are revised.

Paul Biersach was elected delegate to the National Convention at Louisville, Alfred Goethel being unable to attend.

Sheet Steel Executives to Meet At Greenbrier Hotel, White Sulphur Springs, May 17 to 20

The National Association of Sheet and Tin Plate Manufacturers has announced a preliminary program for the fourth annual meeting of the sheet steel executives, to be held at the Hotel Greenbrier, White Sulphur Springs, West Virginia, on May 17, 18, 19 and 20.

W. S. Horner, president of the National Association of Sheet and Tin Plate Manufacturers will speak on "How Can Reasonable Market Stability Be Affected?" C. E. Stuart, Central Steel Company, will speak on the "Fraternity of Business" and Severn P. Ker, Sharon Steel Hoop Company, will talk on the "Wastefulness and Extravagance of Duplication in Industry." Thomas D. McCloskey, general counsel of the National Association of Sheet and Tin Plate Manufacturers will address the meeting on the "Romance of Business" and Charles R. Hook, American Rolling Mill Company, will speak on "Some Labor Problems Confronting the Sheet Steel Industry Today."

The Wednesday program will open with an address on "Awakening Sheet Steel Consciousness in Tomorrow's Men," by C. L. Bailey,

field representative of the Sheet Steel Trade Extension Committee. Bennett Chapple, publicity manager of the American Rolling Mill Company, will follow with an address on "The Sheet Steel Home." J. J. Rockwell, vice-president of Crosby-Chicago Company, Inc., will speak on "Creating a Sheet Steel Minded Public." Laurance F. Miller, National Enameling & Stamping Company, will talk on the "Need For and Value of Cooperation in Trade Extension Effort."

Thursday's program will be as follows: "Master Brand Galvanized Sheets—How Use of the Brand May Be Further Extended," by Walter C. Carroll, vice-president, Inland Steel Company, "The Trade Extension Program from the Members' Standpoint," by J. C. Grimes, Wheeling Steel Corporation; "Market Stability Through Standardization and Classification," by Charles O. Hadly, Alan Wood Iron & Steel Company; "Relation of City Building Codes to Sheet Steel Demand," by George L. Bennett, Director Building Trade Extension, Sheet Steel Trade Extension Committee; "Converting Interest into Tonnage," by Murray Springer, vice-president, Crosby-Chicago Company, Inc.

Cook County Sheet Metal Club Begins Series of Overhead Cost Lectures.

The Cook County Sheet Metal Club held another very interesting meeting in its new club rooms in the Immel Bank Building, Elson and California Avenues, Chicago, May 7.

At this meeting the first of a series of four lectures on the proper method of determining overhead costs was given.

An unusually large turnout of the members of this rapidly growing club were on hand for the meeting.

The four lectures are embodied in the address made by W. V. Schmidt of the Comfort Printing and Specialty Company, St. Louis, Missouri, appearing in the April 17 issue of AMERICAN ARTISAN.

The Cook County Sheet Metal Club was organized about a year ago for the purpose of advancing

the interests of sheet metal contractors and warm air furnace installers in and around Chicago. For the short time it has been in existence it has accomplished a world of good. Its members have thrown their

whole heart into the project and are regular in their attendance at the meetings. Meetings are held twice a month; namely, every first and third Friday evening during the month. The Secretary is Edward

N. Stahler, of the G. & S. Stove & Furnace Company, 4223 West North Avenue, Chicago. The meetings are held in Immel Hall, located in the Immel State Bank Building, 2800 Belmont Avenue, Chicago.

Some Pointers on Flashing Metal Work to Brick or Stone Walls

Epecially Recommended for Parapet Walls Between Four Family Flat Houses

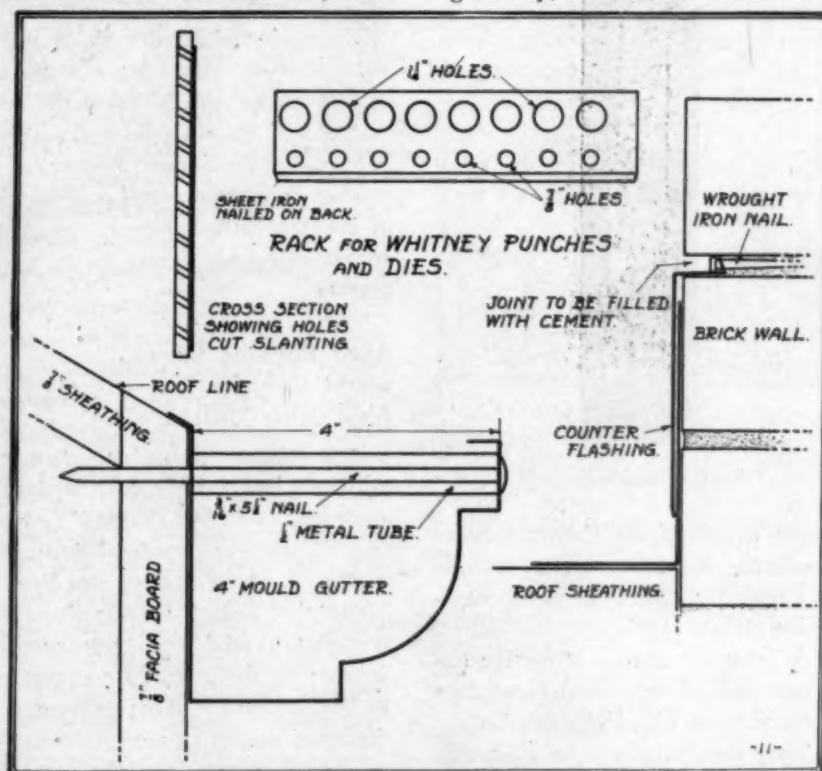
By O. W. KOTHE, Principle St. Louis Technical Institute

ONE of our students recently sent in quite novel details about work affecting jobbings and such other things, which are, of no doubt, of interest to the readers, especially in the manner of flashing metal work to brick or stone walls, which

This method is recommended especially on parapet walls between four family flat houses, where sometimes leaks occur near the wall and it is impossible to locate them. The writer has often observed in years gone by, that such leaks come

tube can be made and spiked to the woodwork as our drawing shows. There are many different kinds of hangers used and while many of them are satisfactory, still the workman has not them always at hand to use when he most needs them. It is therefore necessary to improvise methods of doing the work satisfactorily with what he has at hand.

In the shop also racks can be made for many of the small tools, and other equipment to prevent them laying around in boxes and the like where a person must empty out a lot of junk before he can locate his tool. Here a sheet iron rack is shown for holding punches and dies. Similar schemes can be used for many of the other things in a shop as hollow punches, solid punches, groovers, and the like. It should be the apprentice's duty to maintain system in the shop and keep tools put away, so that where a person may need it and must look for it in the dark he can easily put his hands on it.



Pointers on Flashings

is a method seldom followed. Here a right angle edge is bent up to suit the width of the mortise joint and a wrought iron nail is driven into the joint, thus making it secure and it will not rust away as a wire nail will do. This joint is then filled with cement, making a tight joint where no leakage is possible.

around the flashing and often soak through other joints in the brick work, so that the entire parapet wall must be covered with cement, that is exposed to the weather.

Now and then a person meets with the hanging of gutters that is very inconveniently done, with hangers, and in that case, a metal

Ryerson Acquires Reenforcing Bar Division of the Penn Metal Company

Joseph T. Ryerson & Son, Inc., Chicago, has taken over the reenforcing bar division of the Penn Metal Company, Boston. General sales offices have been opened at 667 Concord Avenue, Cambridge, Massachusetts, and a complete staff of engineers and draftsmen are prepared to estimate and quote on the steel reenforcing requirements of all

types of construction. The new owner is adding to the sizes and tonnage carriage and to increase the facilities in all departments.

Heretofore the Ryerson company has served its New England customers through its plants at Jersey City and Buffalo. This business will now be taken care of through the new Cambridge branch.

Rudolph Strehlow, Peoria Hardware Merchant, Dies at Age of 62

Rudolph Strehlow, prominent hardware dealer, died at the home of his sister, Mrs. C. E. Ulrich, 1808 Columbia Terrace, Peoria, Illinois, shortly after 1 o'clock, Thursday morning, May 6.

His death was attributed to heart disease. He had been ill since last November.

Rudolph Strehlow was born in Peoria June 8, 1864. His parents were Robert and Marie Strehlow who came from Breslau, Germany, in 1849 and took up their residence in Peoria.

He was educated in the schools of Peoria and in October, 1888, was married, his bride being Miss Abbie Ball. Mrs. Strehlow and three daughters, Mrs. W. W. McMaster, Peoria; Mrs. Weston Cutter, Louisville, Ky.; and Mrs. Paul Branstedt, Washington, D. C., are among the survivors. He also leaves a sister, Mrs. C. E. Ulrich, 1808 Columbia Terrace, at whose home he died. There are also eight grandchildren.

Mr. Strehlow established the first hardware store in The Uplands, twenty years ago. A month ago failing health caused him to sell his business, at Main and University streets.

He was a member of the Universalist church, Temple Lodge No. 46, A. F. and A. M.; Peoria Chapter No. 7, R. A. M.; Peoria Commandery No. 3, Knight Templar, and Mohammed Temple A. A. O. N. M. S. He was also a member of the Optimist Club, of the Sheet Metal Contractors' Association and various trade associations.

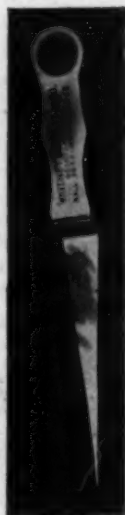
He had been in the hardware

business here for about 40 years and only lately retired from the presidency of the company bearing his name. His activities had reached into many branches of business and social life of the city.

Besides his widow, he leaves three daughters—Mrs. W. W. McMaster, Peoria; Mrs. Weston Cutter, Louisville, Kentucky, and Mrs. Paul Brandstedt, Washington, D. C.

Whitney to Have Metal Punch Display at Louisville Convention

The Whitney Metal Tool Company, Rockford, Illinois, has made arrangements to show a complete line of their punches and angle iron machinery at the convention of Na-



The Souvenir

tional Sheet Metal Contractors at Louisville, Kentucky. They will be in Room Number 1412 at the Kentucky Hotel.

A souvenir, a very attractive envelope opener, will be presented to each delegate who visits the display.

They are going to be in a position to demonstrate their tools, doing actual work.

Trade Development Committee to Meet In Louisville, May 24

A meeting of the trade development committee of the National Association of Sheet Metal Contractors will be held in Louisville May 24 at 10 a. m. o'clock. It is expected that

an announcement relative to completion of the sheet metal text book being prepared by the committee will be made following the meeting.

Chicago Sheet Metal and Roofing Company to Move Into Larger Quarters

The Chicago Sheet Metal & Roofing Company, with offices located at 14 West Washington Street, Chicago, are moving into more spacious quarters at 231 West Superior Street, according to J. Sachs, junior member of the firm.

The company is growing rapidly and the new quarters are necessary to accommodate the increased business which the firm has enjoyed.

Formerly the office and workshop were separated. The two will be combined in the new location, adding greatly to the convenience of all concerned.

The senior partner of the firm is W. N. Clasen. Mr. Clasen is an expert estimator and he takes care of that end of the business exclusively. Mr. Sachs, the junior partner, is a cracker jack sheet metal man and is in constant attendance at the shop supervising the work as it progresses.

April Building Shows Slight Decrease from Other Months.

The volume of construction commitments had a slight drop in April, according to F. W. Dodge Corporation. Contracts awarded last month in the 37 States east of the Rocky Mountains (which include about 91 per cent of the total construction volume of the country), amounted to \$570,613,600. There was a decrease of nearly 5 per cent from the preceding month, and the increase over April of last year was less than 1 per cent. The Spring peak of contracts usually falls in April, but apparently was reached in March this year.

Included in last month's records were the following important items: \$265,331,000, or 46 per cent of all construction, for residential buildings; \$89,333,000 or 16 per cent, for commercial buildings; \$79,227,-

400, or 14 per cent, for public works and utilities (mainly civil engineering projects); \$45,652,800, or 8 per cent, for industrial buildings; and \$38,480,200, or 7 per cent, for educational buildings.

Total building and engineering contracts awarded during the first four months of 1926 have amounted to \$2,015,551,300, the largest amount yet recorded for the first four months of any year. The increase over the first four months of 1925 has been 20 per cent. At the end of March, this year was 30 per cent ahead of 1925. Outside of New York city (which is now 95 per cent ahead of last year) the increase to the end of April was 8 per cent.

Contemplated new work reported for the 37 eastern States last month amounted to \$912,982,100, which was a decrease of 11 per cent from the amount reported in March and an increase of 16 per cent over the amount reported in April of last year.

Sheet Metal's Use Gaining Ground In Los Angeles, California

The entire sheet metal work used in the new Producers' Market, Los Angeles, California, is accredited to the Charles J. Strangman Company, 137 Rose Street, pioneer Los Angeles manufacturers of sheet metal products.

Starting in the same location 20 years ago with two workmen, the increased business necessitates the employment of 20 artisans, who ply their trade in turning out of plain sheets of iron all sort of articles for the building of homes, interior devices, as well as exterior.

Repair work also plays an important part in this business, as was evidenced during the recent rains, when home-owners realized that gutters were as necessary an equipment for a home in Los Angeles as in the East.

The Charles J. Strangman Company is conducted by Charles J. Strangman and Walter J. Strangman.

Kren and Klopff Open Sheet Metal Business at Saginaw.

Kren and Klopff started in business at 714 North Jefferson Avenue, Saginaw, three weeks ago, doing general furnace, sheet metal, and automobile body and fender work.

AMERICAN ARTISAN extends its best wishes to Kren and Klopff for their success.

Uniform Standard Furnace Code Ordinance Being Compiled

The Legislative Committee of the National Warm Air Heating and Ventilating Association is now engaged in the compilation of a standard furnace code ordinance, adaptable to the needs of all communities and cities throughout the United States. This uniform ordinance governing installations will be ready for insertion without change, in the building codes and regulations of any city, whether it be San Francisco or St. Louis, Cincinnati or New Orleans.



Roofing Cleats

From Leonard E. Schuelke, Leader Sheet Metal Works, Waupaca, Wisconsin.

Kindly tell me who makes roofing cleats.

Ans.—Berger Brothers Company, 237 Arch Street, Philadelphia, Pennsylvania.

"Toncan" Products

From The West Sheet Metal Company, 140 South West Street, Galesburg, Illinois.

Will you please inform us who carries "Toncan" products in stock?

Ans.—"Toncan" products are made by the United Alloy Steel Corporation, Canton, Ohio, and are carried in stock in Chicago by A. M. Castle and Company, 1132 Blackhawk Street.

Pure Copper Cable and Twisted Galvanized Lightning Rods

From Fred Enz, Cissna Park, Illinois.

I should like to know who makes

pure copper cable rods, also, twisted galvanized rods.

Ans.—1. L. F. Diddie Company, Marshfield, Wisconsin. 2. St. Louis Lightning Rod Company, St. Louis, Missouri, and Mast Lightning Rod Company, West Milton, Ohio.

Hand Bicycle Tire Pump

From Homer Sheet Metal and Plumbing Works, Homer, Louisiana.

Can you tell us who makes a small bicycle tire pump?

Ans.—Noera Manufacturing Company, Waterbury, Connecticut. They are carried in stock by the Mead Cycle Company, 162 North Clinton Street, Chicago.

Paint Colors

From O. F. Ryan, Charleston, Illinois.

Who makes colors such as red, green, etc., for roofing paints?

Ans.—Pecora Paint Company, Erie, Pennsylvania, and William Connors Paint Manufacturing Company, Troy, New York.

Pipe Covering Bands

From Springfield Furnace Company, 153 Liberty Street, Springfield, Massachusetts.

We should like to know who makes lacquered bands such as are used around asbestos covered pipes.

Ans.—Johns-Manville, Inc., 292 Madison Avenue, New York City, and Atlantic Wire and Metal Manufacturing Company, 225 Starr Avenue, Brooklyn, New York.

Galvanized Coated Nails

From L. C. Nye, 82 West Union Street, Athens, Ohio.

Please advise me who makes galvanized coated nails $\frac{5}{8}$ inch long of 16 gauge wire to be used for refrigeration work where dampness has to be taken into consideration.

Ans.—American Steel and Wire Company, 208 South La Salle Street, Chicago, Illinois.

Coulters

From Joseph Werndl, 213 East 12th Street, Coffeyville, Kansas.

Who makes counters to be used on farm implements 5 to 7 inches in diameter?

Ans.—Bethlehem Steel Corporation, Chemical Building, St. Louis, Missouri; Galesburg Coulter Disc Company, Galesburg, Illinois; R. Herschel Manufacturing Company, Peoria, Illinois, and Noll Brothers, 849 Allis, Milwaukee, Wisconsin.

Random Notes and Sketches

By Sidney Arnold

"The essence of humor is sensibility; warm, tender fellow-feeling with all forms of existence."—Carlyle.

I want to call the attention of my readers to an attractive little bulletin which is issued at irregular intervals by the Independent Register & Manufacturing Company, Cleveland, Ohio, called the *Independent Register*. A copy of this little sheet has just reached my desk. In addition to the information about the company product of interest to the furnace installer, there are also some illustrations of the scroll design register faces, which were up-to-date fifty or more years ago. If you are so out of date as to believe that the world does not move, just write a personal letter to E. C. Fox asking for a copy of the bulletin for May. With this you will be able to contrast the antiques with the present day construction and you will certainly be convinced.

* * *

You know, during the war Trow Warner of Tuttle & Bailey Manufacturing Company, New York, was very much in the military service. One day while attempting to get his men to drill said men did very poorly. Becoming exasperated with the privates under his command, Trow stopped in the midst of the field and began as follows:

"When I was a little boy," Lieut. Warner addressed his men, "I had a set of wooden soldiers. One day I lost those soldiers and I cried very much. But my mother said, 'Never mind, Trow, some day you will get your wooden soldiers back.' And believe me, you bunch of wooden headed dumbbells, that day has come!"

* * *

George Harms does a great deal of traveling.

One day, while on a train Mr. Harms became very impatient at the progress the train was making, hailed the conductor and made his complaint.

"Well," said the conductor, "if this train isn't going fast enough to

suit you, you had better get out and walk."

"I certainly would," replied Mr. Harms, "but the folks won't expect me until the train gets there."

* * *

A short time ago in St. Louis a large burly man called at the residence of E. B. Langenberg, President of the National Warm Air Heating and Ventilating Association.

When the door was opened, the man asked to see Mrs. Langenberg, who is well known for her charity impulses. "Madame," he addressed her in a broken voice, "I wish to draw your attention to the terrible plight of a poor family in this district. The father is dead, the mother is too ill to work, and the nine children are starving. They are about to be turned into the cold, cold streets unless some one pays their arrears in rent, which amounts to fifty dollars."

"How terrible," said Mrs. Langenberg sympathetically, "may I ask who you are?"

The weeping visitor applied his handkerchief to his eyes and said, "I'm the landlord."

* * *

Before Gilbert H. Moore, Grand Rapids, Michigan, who represents the Rudy Furnace Company, Dowagiac, Michigan, was married he did a great deal more traveling than he does now. He is very fond of hard boiled eggs. (I mean hen fruit.) One day when he was on the road he sat in a restaurant at breakfast and noticed the inscription on one of his hard boiled eggs which read: "To whom it may concern: Should this egg meet the eye of some young man who desires to marry a farmers' daughter, eighteen years of age, kindly communicate with —, Sparta, New Jersey." G. H. made a note of the address and thought he would have

some fun. Later he wrote to the young lady and received the following reply: "Your note came too late. I am married now and have four children."

* * *

My work is certainly chock full of pleasant surprises. My friends are constantly dropping in to say a word or two when passing through the city. The latter part of last week Valentine A. Fath, of the St. Louis Heating Company, St. Louis, Missouri, came in. He only remained a very short while, but he gave me some mighty valuable pointers about the warm air heating industry and current practices within the industry. I enjoy these little visits very, very much and my only regret is that more men in the trade do not make them.

* * *

Otto Geussenheiner, who is rather portly, was endeavoring to make his way out of a crowded railway coach. It so happened that he had several suitcases and numerous small packages. These, of course, obstructed his view somewhat and as he reached the door he stumbled on the pet corn of a brawny Scot. "Hoots, toots mon!" groaned the latter. "Canna ye look whauer ye're goin'?" Hoot, toot, mon, hoot!"

After Mr. Geussenheiner had slammed the door behind him and had stepped down to the platform, turned to the Scot, who was eyeing him through the car window and retorted: "Hoot, yerself, I'm a traveler not a motorcar."

* * *

Oh, a Nice, Nice Doggy!

Arthur Lamneck was getting his hair cut when he noticed that the barber's dog, which was lying on the floor beside the chair, had his eyes fixed on his master at work.

"Nice dog, that," said Art.

"He is, sir."

"He seems very fond of watching you cut hair."

"It ain't that," explained the barber. "You see, sometimes I make a mistake and cut off a bit of the customer's ear."

The Editor's Page

Using Courtesy and Kindness to Capture Business

COURTESY costs little and produces much. No act of the sheet metal contractor or furnace installer will build good will for his business more rapidly than courtesy in his dealings. By courtesy is not meant obeisance or reverence, but simply genuine habitual politeness or courtliness.

All people, except "low brows," enjoy and appreciate politeness and courtesy. The sheet metal contractor who has not naturally a pleasing personality should strive to cultivate that quality. He should also take the trouble to develop it in his salesmen and his workmen. They are meeting his customers and are representing his business and for that reason he should see to it that they so conduct themselves while on duty as to compel people to think well of him.

Whenever a job is being completed, the contractor should give his foreman emphatic instructions to leave the premises upon which the work was being done in as orderly a fashion as possible. The theft of small tools or articles from a basement should never for an instant be tolerated. All debris and mess created by the workmen should be removed and destroyed before the last man is permitted to leave.

Never walk into a home owner's basement on a return inspection trip, even though you have just finished putting in a heating plant, without first courteously asking permission to do so.

Too many sheet metal men, particularly those who are "getting on," are apt to be a trifle gruff in their manners. They are also apt to be somewhat careless about their personal appearance.

While these things are only small matters, they do nevertheless influence people in the impression they form of you.

If you enter a home owner's basement, chances are you will be compelled to go through the kitchen at least. You are hardly apt to create much in the way of a favorable impression on the lady of the house if you track dirt and mud into her kitchen or leave finger marks on the walls near the basement door.

How much respect could a banker or a lawyer command if they were to go around poorly dressed? None at all, and you are no different. If you act the part of a mediocre workman, people are bound to take you not at your intrinsic value but at your face value, so to speak.

Quite recently I had the privilege of visiting a number of private dwelling houses in which warm air furnaces were installed. I was in the company of a well-to-do sheet metal contractor, who hasn't worn a pair of overalls for years. This chap is on the way up as surely as anyone ever could be. While descending the stairway

into the basement, I accidentally upset a milk bottle that was standing in the basement landing. The contractor turned suddenly and gave me a quick glance, which plainly showed that he was extremely irritated, even though I was his guest.

The incident showed very plainly that he was on his metal and wished to do nothing that would leave a bad impression of him. I admired him for it and felt greatly ashamed of my awkwardness. The courtesy which that young chap displayed when addressing any one of his customers, salesmen or what not was a revelation to me. And with it all he had a humanness about him that was perfectly fascinating. My only regret is that each and every sheet metal contractor who really has the interests of the industry at heart is not able to get a first hand view of that chap at his work.

All Roads Lead to Louisville for Sheet Metal Contractor

ON ANOTHER page in this issue there appears the program of the Louisville convention of the National Association of Sheet Metal Contractors. A glance at this program will convince anyone who is at all interested in the sheet metal industry that it would be folly to miss this convention.

To spend a week with a live-wire group of sheet metal men such as the group that will assemble at the Hotel Kentucky, Louisville, on Monday, May 24, is an inspiration, a broadening influence—a coveted privilege.

The conventions of the National Sheet Metal Contractors' Association have always been a success from their first. They have been held in many different cities. The contests waged between the delegates from the various cities to bring the convention to their city have been hot and furious, showing that any given group of men consider it a great honor to have the privilege of being hosts to the national convention. Few men who attended the Atlanta convention last year or the Washington convention the year previous will forget the enjoyable times which were shown them by the hosts on those memorable occasions.

The preparations being made for the entertainment of the delegates and their wives this year at Louisville have been in progress almost from the time the Louisville delegates got back from the Atlanta convention last year. Every detail of the work has been looked after by hands and brains well qualified to act as hosts to so dignified a body of men and women as will make up the delegation to the Louisville convention.

For the sheet metal contractor in all parts of the country all roads will lead to Louisville the latter part of May.

Tables Eliminate Much Work in Applying Standard Furnace Code

Multiplication and Division All Worked Out for Installers for 8 and 9-Foot Ceilings

By GEORGE DUERR

TEMPUS fugit! (Time flies.) One of the most valuable possessions we have is time. Each day each individual is allotted an equal number of hours to do with as he or she sees fit. It can be wasted or it can be put to good use. The extent to which we put it to good measures the extent of our ultimate success in life.

The Standard Furnace Code was evolved for the purpose of giving the furnace installer a method of

arriving at the heating requirements of any given space scientifically and, therefore as near accurately as it is possible to compute those requirements by any given method so far known.

The application of the Standard Furnace Code, however, as every one who has employed it knows, requires an enormous amount of figuring. In the Code's application gives little consideration to the economy of time, a very important fac-

tor when the salesman is out on the job giving the customer an idea of the approximate requirements for heating the house. Of course, there is no intention to belittle the value of the Standard Furnace Code. It is the best thing we have for making accurate calculations. And until some accurate short cut is found, it should be used as is, even though it does require considerable time.

However, it is a short cut in the application of the Standard Furnace

Exposed Wall ÷ 60							
40... .66	80... 1.33	120... 2.00	160... 2.66	200... 3.33	240... 4.00	280... 4.66	320... 5.33
41... .68	81... 1.34	121... 2.01	161... 2.68	201... 3.34	241... 4.01	281... 4.68	321... 5.34
42... .70	82... 1.36	122... 2.03	162... 2.70	202... 3.36	242... 4.03	282... 4.70	322... 5.36
43... .71	83... 1.38	123... 2.04	163... 2.71	203... 3.38	243... 4.04	283... 4.71	323... 5.38
44... .73	84... 1.40	124... 2.06	164... 2.73	204... 3.40	244... 4.06	284... 4.73	324... 5.40
45... .74	85... 1.41	125... 2.08	165... 2.74	205... 3.41	245... 4.08	285... 4.74	325... 5.41
46... .76	86... 1.43	126... 2.10	166... 2.76	206... 3.43	246... 4.10	286... 4.76	326... 5.43
47... .78	87... 1.44	127... 2.11	167... 2.78	207... 3.44	247... 4.11	287... 4.78	327... 5.44
48... .80	88... 1.46	128... 2.13	168... 2.80	208... 3.46	248... 4.13	288... 4.80	328... 5.46
49... .81	89... 1.48	129... 2.14	169... 2.81	209... 3.48	249... 4.14	289... 4.81	329... 5.48
50... .83	90... 1.50	130... 2.16	170... 2.83	210... 3.50	250... 4.16	290... 4.83	330... 5.50
51... .84	91... 1.51	131... 2.18	171... 2.84	211... 3.51	251... 4.18	291... 4.84	331... 5.51
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54... .90	94... 1.56	134... 2.23	174... 2.90	214... 3.56	254... 4.23	294... 4.90	334... 5.56
55... .91	95... 1.58	135... 2.24	175... 2.91	215... 3.58	255... 4.24	295... 4.91	335... 5.58
56... .93	96... 1.60	136... 2.26	176... 2.93	216... 3.60	256... 4.26	296... 4.93	336... 5.60
57... .94	97... 1.61	137... 2.28	177... 2.94	217... 3.61	257... 4.27	297... 4.95	337... 5.61
58... .96	98... 1.63	138... 2.30	178... 2.96	218... 3.63	258... 4.30	298... 4.96	338... 5.63
59... .98	99... 1.64	139... 2.31	179... 2.98	219... 3.64	259... 4.31	299... 4.98	339... 5.64
60... 1.00	100... 1.66	140... 2.33	180... 3.00	220... 3.66	260... 4.33	300... 5.00	340... 5.66
61... 1.01	101... 1.68	141... 2.34	181... 3.01	221... 3.68	261... 4.34	301... 5.01	341... 5.68
62... 1.03	102... 1.70	142... 2.36	182... 3.03	222... 3.70	262... 4.36	302... 5.03	342... 5.70
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65... 1.08	105... 1.74	145... 2.41	185... 3.08	225... 3.74	265... 4.41	305... 5.08	345... 5.74
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69... 1.14	109... 1.81	149... 2.48	189... 3.14	229... 3.81	269... 4.47	309... 5.14	349... 5.81
70... 1.16	110... 1.83	150... 2.50	190... 3.16	230... 3.83	270... 4.50	310... 5.16	350... 5.83
71... 1.18	111... 1.84	151... 2.51	191... 3.18	231... 3.84	271... 4.51	311... 5.18	351... 5.84
72... 1.20	112... 1.86	152... 2.53	192... 3.20	232... 3.86	272... 4.53	312... 5.20	352... 5.86
73... 1.21	113... 1.88	153... 2.54	193... 3.21	233... 3.88	273... 4.54	313... 5.21	353... 5.88
74... 1.23	114... 1.90	154... 2.56	194... 3.23	234... 3.90	274... 4.56	314... 5.23	354... 5.90
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76... 1.26	116... 1.93	156... 2.60	196... 3.26	236... 3.93	276... 4.60	316... 5.26	356... 5.93
77... 1.28	117... 1.94	157... 3.61	197... 3.28	237... 3.94	277... 4.61	317... 5.28	357... 5.95
78... 1.30	118... 1.96	158... 3.63	198... 3.30	238... 3.96	278... 4.63	318... 5.30	358... 5.96
79... 1.31	119... 1.98	159... 3.64	199... 3.31	239... 3.98	279... 4.64	319... 5.31	359... 5.98

Table of Factors Derived from the Division of Square Feet of Exposed Wall Surface by 60. Table Begins with 40 Square Feet and Ends with 359

Code to which attention is called at this time.

Perhaps we are wrong in calling it a short cut; for the outline that is about to be spread before you is in reality not a short cut at all. In the tables that have been compiled the necessary multiplication and division has been already done for you for all possible measurements within a certain range. Other ranges will probably be computed at a later date. By using these tables you are enabled to apply the Standard Furnace Code without doing all the necessary multiplication and division. That part of the work has been done for you—hence the saving in time to you when your time is most valuable.

There is nothing complicated about these tables. Anyone who un-



Exterior View of the Bood Residence, Lake Geneva, Wisconsin, in Which Warm Air Furnace Was Installed by Fey & Fey, Delavan, Wisconsin

derstands the application of the Code can use the tables effectively, with an immense saving in time and labor. Used coördinately with the

8 Ft. Ceiling. $L \times W \times H \div 800$															
18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	
.72	.68	.64	.60	.56	.52	.48	.44	.40	.36	.32	.28	.24	.20	.16	4
.90	.85	.80	.75	.70	.65	.60	.55	.50	.45	.40	.35	.30	.25	.20	5
1.08	1.02	.96	.90	.84	.78	.72	.66	.60	.54	.48	.42	.36	.30	.24	6
1.26	1.19	1.12	1.05	.98	.91	.84	.77	.70	.63	.56	.49	.42	.35	.28	7
1.44	1.36	1.28	1.20	1.12	1.04	.96	.88	.80	.72	.64	.56	.48	.40	.32	8
1.62	1.53	1.44	1.35	1.26	1.17	1.08	.99	.90	.81	.72	.63	.54	.45	.36	9
1.80	1.70	1.60	1.50	1.40	1.30	1.20	1.10	1.00	.90	.80	.70	.60	.50	.40	10
1.98	1.87	1.76	1.65	1.54	1.43	1.32	1.21	1.10	.99	.88	.77	.66	.55	.44	11
2.16	2.04	1.92	1.80	1.68	1.56	1.44	1.32	1.20	1.08	.96	.84	.72	.60	.48	12
2.34	2.21	2.08	1.95	1.82	1.69	1.56	1.43	1.30	1.17	1.04	.91	.78	.65	.52	13
2.52	2.38	2.24	2.10	1.96	1.82	1.68	1.54	1.40	1.26	1.12	.98	.84	.70	.56	14
2.70	2.55	2.40	2.25	2.10	1.95	1.80	1.65	1.50	1.35	1.20	1.05	.90	.75	.60	15
2.88	2.72	2.56	2.40	2.24	2.08	1.92	1.76	1.60	1.44	1.28	1.12	.96	.80	.64	16
3.06	2.89	2.72	2.55	2.38	2.21	2.04	1.87	1.70	1.53	1.36	1.19	1.02	.85	.68	17
3.24	3.06	2.88	2.70	2.52	2.34	2.16	1.98	1.80	1.62	1.44	1.26	1.08	.90	.72	18
3.42	3.23	3.04	2.85	2.66	2.47	2.28	2.09	1.90	1.71	1.52	1.33	1.14	.95	.76	19
3.60	3.40	3.20	3.00	2.80	2.60	2.40	2.20	2.00	1.80	1.60	1.40	1.20	1.00	.80	20
3.78	3.57	3.36	3.15	2.94	2.73	2.52	2.31	2.10	1.89	1.68	1.47	1.26	1.05	.84	21
3.96	3.74	3.52	3.30	3.08	2.86	2.64	2.42	2.20	1.98	1.76	1.54	1.32	1.10	.88	22
4.14	3.91	3.68	3.45	3.22	2.99	2.76	2.53	2.30	2.07	1.84	1.61	1.38	1.15	.92	23
4.32	4.08	3.84	3.60	3.36	3.12	2.88	2.64	2.40	2.16	1.92	1.68	1.44	1.20	.96	24
4.50	4.25	4.00	3.75	3.50	3.25	3.00	2.75	2.50	2.25	2.00	1.75	1.50	1.25	1.00	25
4.68	4.42	4.16	3.90	3.64	3.38	3.12	2.86	2.60	2.34	2.08	1.82	1.56	1.30	1.04	26
4.86	4.59	4.32	4.05	3.78	3.51	3.24	2.97	2.70	2.43	2.16	1.89	1.62	1.35	1.08	27
5.04	4.76	4.48	4.20	3.92	3.64	3.36	3.08	2.80	2.52	2.24	1.96	1.68	1.40	1.12	28
5.22	4.93	4.64	4.35	4.06	3.77	3.48	3.19	2.90	2.61	2.32	2.03	1.74	1.45	1.16	29
5.40	5.10	4.80	4.50	4.20	3.90	3.60	3.30	3.00	2.70	2.40	2.10	1.80	1.50	1.20	30
5.58	5.27	4.96	4.65	4.34	4.03	3.72	3.41	3.10	2.79	2.48	2.17	1.86	1.56	1.24	31
5.76	5.44	5.12	4.80	4.48	4.16	3.84	3.52	3.20	2.88	2.56	2.24	1.92	1.60	1.28	32
5.94	5.61	5.28	4.95	4.62	4.29	3.96	3.63	3.30	2.91	2.64	2.31	1.98	1.65	1.32	33
6.12	5.78	5.44	5.10	4.76	4.42	4.08	3.74	3.40	3.06	2.72	2.38	2.04	1.70	1.36	34
6.30	5.95	5.69	5.25	4.90	4.55	4.20	3.85	3.50	3.15	2.80	2.45	2.10	1.75	1.40	35
6.48	6.12	5.76	5.40	5.04	4.68	4.32	3.96	3.60	3.24	2.88	2.52	2.16	1.80	1.44	36
6.66	6.29	5.92	5.55	5.18	4.81	4.44	4.07	3.70	3.33	2.96	2.59	2.22	1.85	1.48	37
6.84	6.46	6.08	5.70	5.32	4.94	4.56	4.18	3.80	3.42	3.04	2.66	2.28	1.90	1.52	38
7.02	6.63	6.24	5.85	5.46	5.07	4.68	4.29	3.90	3.51	3.12	2.73	2.34	1.95	1.56	39
7.20	6.80	6.40	6.00	5.60	5.20	4.80	4.40	4.00	3.60	3.20	2.80	2.40	2.00	1.60	40
7.38	6.97	6.56	6.15	5.74	5.33	4.92	4.51	4.10	3.69	3.28	2.87	2.46	2.05	1.64	41
7.56	7.14	6.72	6.30	5.88	5.46	5.04	4.62	4.20	3.78	3.36	2.94	2.52	2.10	1.68	42

Table of Factors Derived from the Multiplication of Length, Width and Height of Rooms Having an 8-Foot Ceiling, and Divided by 800—Cubic Contents Factors

Code specification sheet this table gives a permanent record of the job requirements quickly that can be filed and used for future reference.

Now for the explanation of what the tables are for and how to use them. Understand first of all, however, that this first series has the cubic contents figured only for 8-foot and 9-foot ceilings. A complete range of ceiling heights will be given eventually should they be found desirable.

The first precept of the Standard Furnace Code directs the installer to divide the total number of square feet of exposed glass area (outside doors computed as exposed glass area) by 12. This has been done for you on page 33 in the table headed "Exposed Glass Area." With your number of square feet of exposed glass area determined, you run down the bold face type column of figures in the table until you find the number which corresponds most nearly with the number you have. The figure in the column opposite is

the factor you are seeking. Simply jot this figure down on the specification sheet in the proper place.

Your next operation is to find the net exposed wall surface and divide

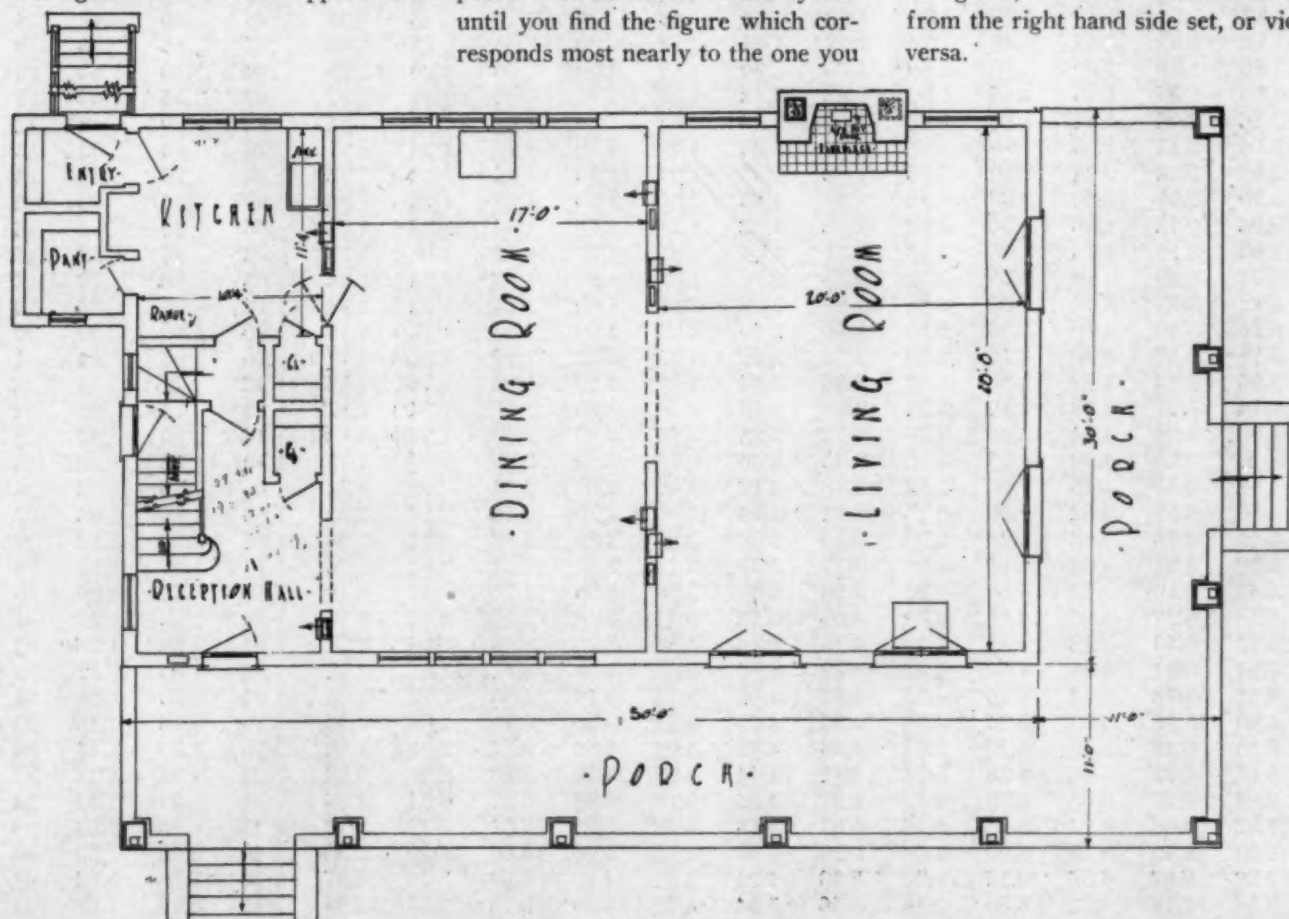
In this article the Editor has presented a set of tables, designed to reduce the actual amount of multiplication necessary when applying the Standard Furnace Code. They are not all inclusive, but take in a range of cases most commonly met with when figuring the requirements of the ordinary sized house. It is hoped in the near future to have this set of tables enlarged, so as to include practically every case to be met with.

that figure by 60. These computations are made for you on page 28. You simply take the number of square feet of net exposed wall surface, run down the bold faced type column in the table headed "Net Exposed Wall Surface Divided by 60" until you find the figure which corresponds most nearly to the one you

have. Then the figure in the opposite column in the light face type is the factor you are seeking.

Your third step, following out the Code, is to divide the cubic contents of the room by 800; that is, you multiply the length, width and height of each room and divide the product obtained by 800. But here again the tables have already done your work for you. This time you look at the table headed "Length, Width, Height Divided by 800" (page 29). As mentioned at the outset, these cubic content tables are limited as yet to an 8-foot and a 9-foot ceiling. But it is hoped that in the near future a complete range of ceiling heights will be computed.

The figures in bold face type at the top of the page can represent either the width or the length of the room. Similarly, those at the right hand side of the table in bold face type can represent either the length or width of the room. However, if we take the length from the top set of figures, the width must be taken from the right hand side set, or vice versa.



First Floor Plan of Bood Residence, Lake Geneva, Wisconsin. In Applying the Code Here a 9-Foot Ceiling Has Been Used Illustrating the Use of Tables Which May or May Not Be the Height Used by the Installers

Now say, for example, that we have a room with a 9-foot ceiling. Then we turn to our table marked 9-foot ceiling. Now say that our room dimension for length is 16 feet. Our room dimension for width is 11 feet. We run along the top of the page until we see in bold face type the figure 16. We run down the column of figures directly below this figure 16 until we are directly opposite the figure 11 in the right hand column. The figure which we find there, then is our factor for a 9-foot ceiling. The table for the 8-foot ceiling is used in exactly the same manner.

Having found the three necessary factors, we add them and multiply their sum by 9 or 6 or 5, according as to whether we are computing the

requirements for a first, second or third floor room.

By the use of these tables our multiplication and division are reduced to an absolute minimum. The amount of time saved and the chance for error minimization are incalculable. It is hoped within the very near future to have a complete set of tables worked out covering every possible room dimension, figured within a half a foot.

A practical application of these tables will prove beneficial. Therefore, we are including in this article a heating system laid out by the Hero Furnace Company of Sycamore, Illinois, and installed by Fey and Fey of Delavan, Wisconsin, in which tables have been used. The job is the residence of H. Bood, lo-

cated at Lake Geneva, Wisconsin.

No ceiling heights are indicated on the plans, and, therefore, it is assumed that the first floor ceiling is 9 feet and the second floor ceiling 8 feet. These ceiling heights have been used in making the application of the tables.

Beginning with the kitchen on the first floor, we see that there are two windows, each 26 by 26 inches. There is also one door two feet ten inches by six feet eight inches, giving a total exposed glass area of 41.2 square feet. Turning to our table for "Glass and Outside Doors Divided by 12," it is found that opposite 41 in the second column from the left, our factor is 3.41. We have saved the time required to divide 41 by 12 by using this table.

Cubic Contents														
9 Ft. Ceiling. Length \times Width \times Height \div 800.														
18	17	16	15	14	13	12	11	10	9	8	7	6	5	4
.80	.76	.72	.67	.63	.58	.50	.49	.45	.40	.36	.31	.27	.22	.18
1.00	.95	.90	.84	.78	.73	.67	.68	.56	.50	.45	.40	.33	.28	.22
1.20	1.14	1.08	1.10	.94	.87	.81	.74	.67	.60	.50	.52	.40	.33	.27
1.41	1.33	1.26	1.18	1.10	1.02	.94	.86	.78	.70	.63	.55	.47	.38	.31
1.62	1.53	1.44	1.35	1.26	1.17	1.08	.99	.90	.80	.72	.63	.54	.45	.36
1.82	1.72	1.62	1.51	1.46	1.31	1.21	1.11	1.00	.91	.81	.70	.60	.50	.40
2.00	1.91	1.80	1.67	1.57	1.46	1.35	1.23	1.12	1.01	.90	.78	.67	.56	.45
2.22	2.10	1.98	1.85	1.73	1.60	1.48	1.36	1.23	1.11	.99	.86	.74	.61	.49
2.45	2.29	2.16	2.02	1.89	1.75	1.62	1.48	1.35	1.21	1.08	.94	.81	.67	.54
2.63	2.48	2.34	2.19	2.04	1.90	1.75	1.60	1.46	1.31	1.17	1.02	.87	.73	.58
2.83	2.67	2.52	2.36	2.20	2.04	1.89	1.73	1.57	1.41	1.26	1.10	.94	.78	.63
3.03	2.86	2.70	2.53	2.36	2.19	2.02	1.85	1.68	1.51	1.35	1.18	1.01	.84	.67
3.24	3.06	2.88	2.70	2.52	2.34	2.16	1.98	1.80	1.62	1.44	1.26	1.08	.90	.72
3.44	3.25	3.06	2.86	2.67	2.48	2.29	2.10	1.91	1.72	1.53	1.33	1.14	.95	.76
3.64	3.44	3.24	3.03	2.83	2.63	2.43	2.22	2.02	1.82	1.62	1.41	1.21	1.01	.81
3.82	3.63	3.42	3.20	2.99	2.77	2.56	2.35	2.13	1.92	1.71	1.49	1.28	1.06	.85
4.05	3.82	3.60	3.37	3.15	2.92	2.70	2.47	2.25	2.02	1.80	1.57	1.35	1.12	.90
4.25	4.01	3.78	3.54	3.30	3.07	2.83	2.59	2.36	2.12	1.89	1.65	1.41	1.18	.94
4.45	4.20	3.96	3.71	3.46	3.21	2.97	2.72	2.47	2.22	1.98	1.73	1.48	1.23	.99
4.65	4.39	4.14	3.88	3.62	3.36	3.10	2.84	2.58	2.32	2.07	1.81	1.55	1.29	1.03
4.86	4.59	4.32	4.05	3.78	3.51	3.24	2.97	2.70	2.43	2.16	1.89	1.62	1.35	1.08
5.06	4.78	4.50	4.21	3.93	3.65	3.37	3.09	2.81	2.53	2.25	1.96	1.68	1.40	1.12
5.26	4.97	4.68	4.38	4.09	3.80	3.51	3.21	2.92	2.63	2.34	2.04	1.75	1.56	1.17
5.46	5.16	4.86	4.55	4.25	3.95	3.64	3.34	3.03	2.73	2.43	2.12	1.82	1.61	1.21
5.67	5.35	5.04	4.72	4.41	4.09	3.78	3.46	3.15	2.83	2.52	2.20	1.89	1.67	1.26
5.87	5.54	5.22	4.89	4.56	4.24	3.91	3.58	3.26	2.93	2.61	2.28	1.95	1.73	1.30
6.07	5.73	5.40	5.06	4.72	4.39	4.05	3.71	3.37	3.03	2.70	2.36	2.02	1.78	1.35
6.27	5.92	5.58	5.23	4.88	4.53	4.18	3.83	3.48	3.13	2.79	2.44	2.09	1.84	1.39
6.48	6.12	5.76	5.40	5.04	4.68	4.32	4.96	3.60	3.24	2.88	2.52	2.16	1.90	1.44
6.68	6.31	5.94	5.56	5.19	4.82	4.45	4.08	3.71	3.34	2.97	2.59	2.22	1.95	1.48
6.88	6.50	6.12	5.73	5.35	4.97	4.59	4.20	3.82	3.44	3.06	2.67	2.29	2.01	1.53
7.08	6.69	6.30	5.90	5.51	5.12	4.72	4.33	3.93	3.54	3.15	2.75	2.36	2.06	1.57
7.29	6.88	6.48	6.07	5.66	5.26	4.86	4.45	4.05	3.64	3.24	2.83	2.43	2.12	1.62
7.49	7.07	6.66	6.24	5.81	5.41	4.99	4.57	4.16	3.74	3.33	2.91	2.49	2.18	1.66
7.69	7.26	6.84	6.41	5.97	5.56	5.13	4.70	4.27	3.84	3.42	2.99	2.56	2.23	1.71
7.89	7.45	7.02	6.58	6.13	5.70	5.27	4.82	4.38	3.94	3.51	3.07	2.63	2.29	1.75
8.10	7.65	7.20	6.75	6.29	5.85	5.40	4.95	4.50	4.05	3.60	3.15	2.70	2.35	1.80
8.30	7.84	7.38	6.91	6.44	5.99	5.54	5.07	4.61	4.15	3.69	3.22	2.76	2.40	1.84
8.50	8.03	7.56	7.08	6.60	6.14	5.67	5.19	4.72	4.25	3.78	3.30	2.83	2.46	1.89

Table of Factors Derived from the Multiplication of Length, Width and Height of Rooms Having a 9-Foot Ceiling, and Divided by 800—Cubic Contents Factors

The next operation is the determination of the next exposed wall area. Our exposed wall area is ten feet four inches multiplied by the ceiling height, which is 9 feet. From this we subtract the exposed glass area and with the net exposed wall area, we enter table headed "Exposed Wall Area Divided by 60," and rundown the left hand column until we find our number and take out the factor opposite that number.

The cubic contents of the room is the next requirement. We find that our room dimensions are eleven feet four inches by ten feet four inches. In the table of cubic contents for a 9-foot ceiling, we find the figures in bold face type, run down the column headed "10," then on the right hand side of the table we find another column of bold face figures which represents our second dimension. We run down this column until we find 11, then the figure in the column headed "10," which is directly opposite the figure "11" in the right hand column is our factor.

These three factors having been obtained, you then add them, and multiply by 9 for the first floor

room, which gives us the basement pipe area in square inches.

It is seen that by the use of these tables, a great deal of multiplication is avoided when the salesman is actually figuring the requirements of

It will be noted that the tables are so arranged in this issue that they can be torn out and placed under a glass top desk if so desired. A small square, cut from a piece of cardboard, will greatly facilitate the use of these tables. The Editor would appreciate it very much if the installer would point out ways in which these tables could be made even more serviceable to him. Let us have your unbiased opinion. We want to serve you.

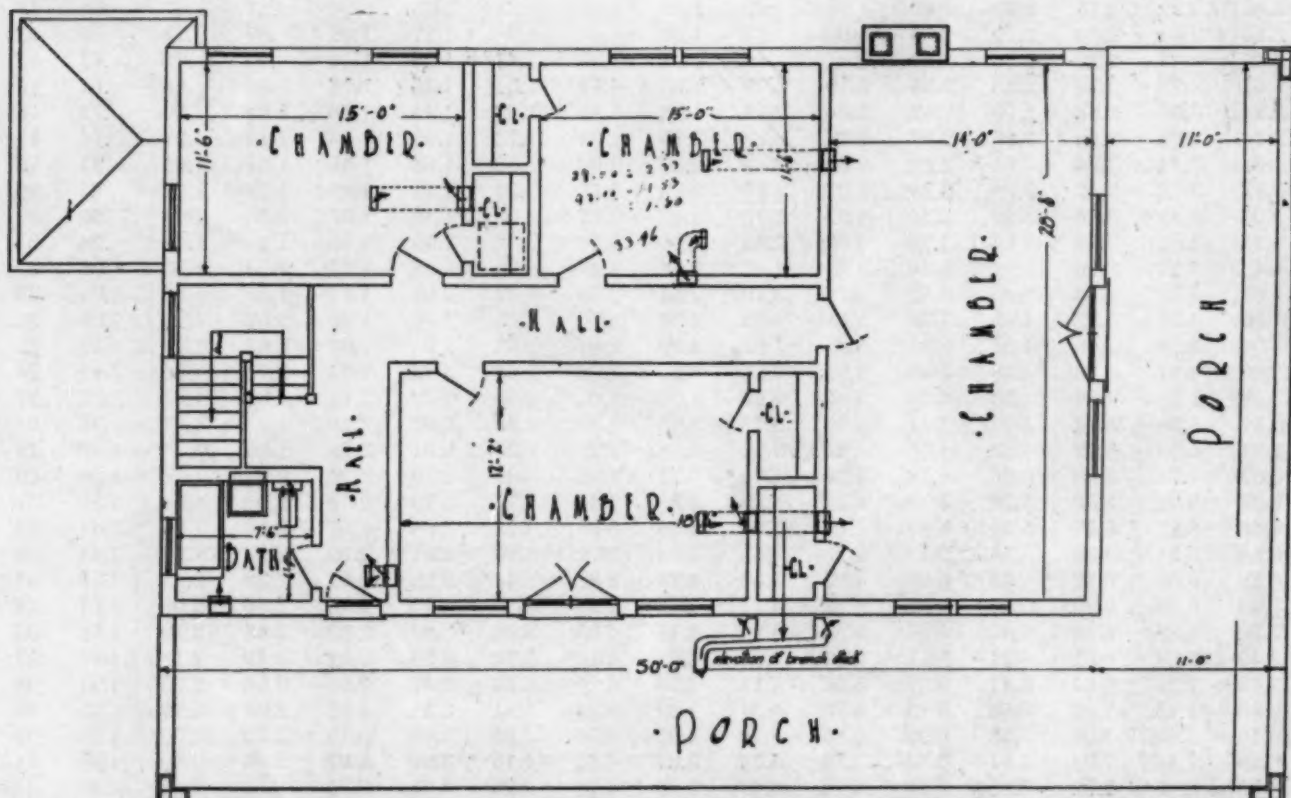
any given house. In addition to that, if an estimate blank sheet is used, such as the one shown in connection with the Jack Stowell story in our May 8th issue, a permanent record is obtained which can be filed and consulted whenever occasion arises.

The requirements of the dining room, living room, reception hall on the first floor are calculated in similar manner. Carrying these calculations out to their conclusion, we find that the dining room will require a basement pipe having 139.5 square inches; the living room will require a basement pipe having an area of 254.61 square inches, while the reception hall requires a basement pipe having a square inch area of 91.08.

Adding these requirements, we find that the first floor of this house requires a total of 533.88 square inches to be taken off of the furnace bonnet.

On the second floor the ceiling is assumed to be 8 feet high. The only difference in applying the tables in this case is that in calculating the cubic contents, we enter the 8-foot ceiling table instead of 9 foot as was used on the first floor.

Having given the exposed glass area and dimensions, the furnace installer can easily make the application of the tables in the same manner as that outlined for the kitchen of the first floor.



Second Floor Plan of Bood Residence. An 8-foot Ceiling Was Taken as the Ceiling Height in Applying the Code to the Second Floor in Illustrating the Use of the Tables

This job has been installed for over a year, and although its requirements were somewhat unusual and seemingly difficult to meet, the job itself is giving entire satisfaction.

The distribution of the warm air ducts and their sizes can be seen on the basement plan of the job which is included in this article. The distribution of the cold air returns is also shown on this same plan.

In the preparation of this article, the author is indebted to The Hero Furnace Company, Fey and Fey of Delavan, Wisconsin, and Jack Stowell of Aurora, Illinois, each of whom very courteously contributed the information contained herein.

Although the tables outlined are not complete in every sense of the word; that is, they are not all inclusive, it is hoped that in the very near future, a set of tables will be worked out taking in a range of dimensions which will take in all possible cases within at least one-half a foot.

The Editor would like an expression of opinion from each and every reader, stating whether or not these tables are of value to him in determining the heating requirements of

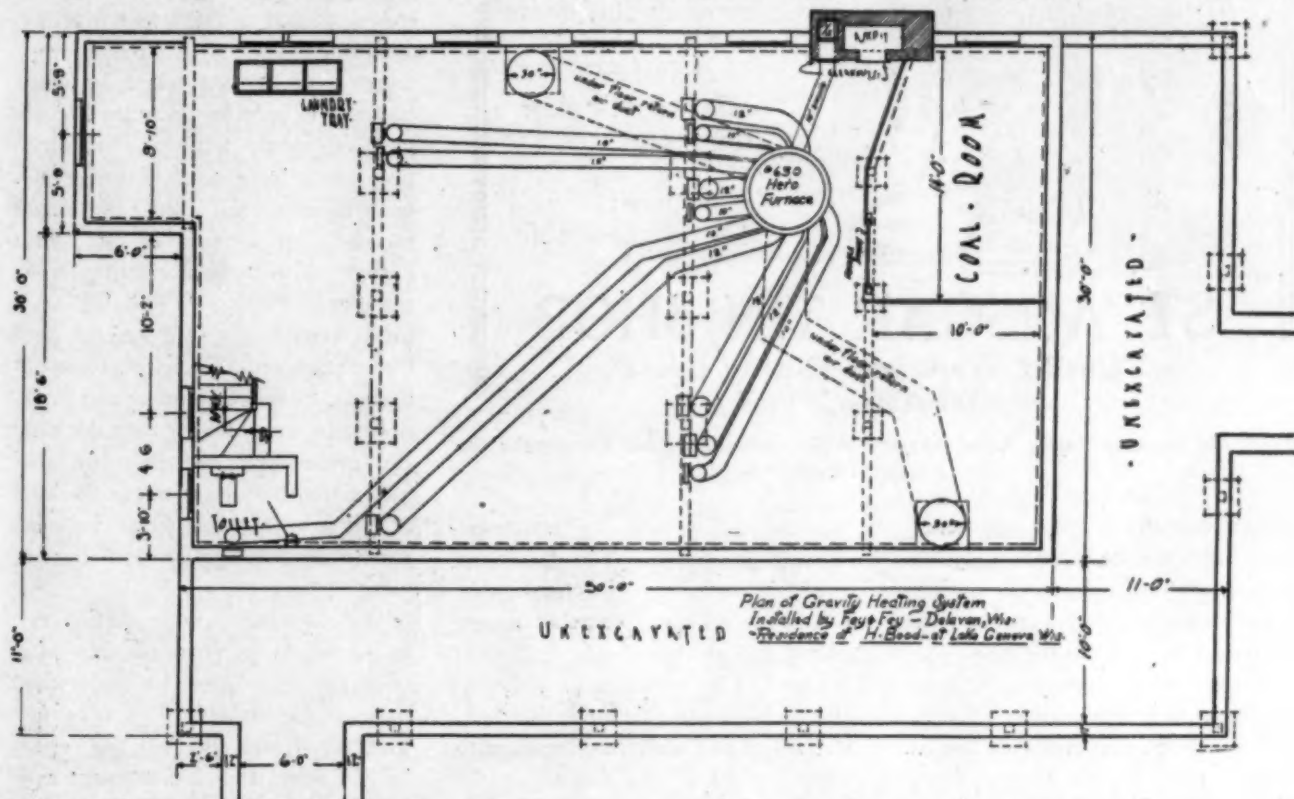
any given house or room. The use of the tables is not difficult and it is believed that a great deal of

time can be saved by their use when the salesman is out selling a warm air heating system.

Glass and Outside Doors ÷ 12

2... .16	31...2.58	61...5.08	91...7.53
3... .25	32...2.66	62...5.16	92...7.67
4... .33	33...2.75	63...5.25	93...7.75
5... .41	34...2.83	64...5.33	94...7.83
6... .50	35...2.91	65...5.41	95...7.92
7... .58	36...3.00	66...5.50	96...8.00
8... .66	37...3.08	67...5.58	97...8.08
9... .75	38...3.16	68...5.66	98...8.17
10... .83	39...3.25	69...5.75	99...8.25
11... .91	40...3.33	70...5.83	100...8.33
12...1.00	41...3.41	71...5.91	101...8.42
13...1.03	42...3.50	72...6.00	102...8.50
14...1.16	43...3.58	73...6.08	103...8.58
15...1.25	44...3.66	74...6.16	104...8.67
16...1.33	45...3.75	75...6.25	105...8.75
17...1.41	46...3.83	76...6.33	106...8.83
18...1.50	47...3.91	77...6.41	107...8.91
19...1.58	48...4.00	78...6.50	108...9.00
20...1.66	49...4.08	79...6.58	109...9.08
21...1.75	50...4.16	80...6.66	110...9.16
22...1.83	51...4.25	81...6.91	111...9.25
23...1.91	52...4.33	82...6.83	112...9.33
24...2.00	53...4.41	83...6.91	113...9.41
25...2.08	54...4.50	84...7.00	114...9.50
26...2.16	55...4.58	85...7.08	115...9.58
27...2.25	56...4.66	86...7.16	116...9.66
28...2.33	57...4.75	87...7.25	117...9.75
29...2.41	58...4.83	88...7.33	118...9.83
30...2.50	59...4.91	89...7.41	119...9.91
	60...5.00	90...7.50	120...10.00

Table of Factors Derived from the Division of Square Feet of Glass and Outside Doors by 12 from 2 to 120



Basement Plan of Boord Residence Showing Rather Unusual Arrangement of Cold and Warm Air Ducts

St. Ansgar Tin Shop Got Good Results With This Ad

Ad Brought in Much Repair Work for His Shop—No Mention of Code

MANY times furnace installers are kind enough, when sending their renewal remittance for AMERICAN ARTISAN, to tell us that the ideas which they have got out of AMERICAN ARTISAN have repaid them many, many times over the

copies of advertisements which had been used by installers with success.

The accompanying reproduction is that of an advertisement used by Mr. Rosel in two successive issues of the local newspaper. He says that the ad brought in much repair

appeal is direct. The illustration very effectively supplements the reading matter and puts the idea across. The sizes of type are well selected to permit of quick reading.

We believe, however, that the ad would have been still more effective had there been something more said about the health, comfort and economy angle of the warm air heating system. Perhaps that is not a just criticism to make in view of the fact that the ad is soliciting repair business, but from the information which we are given under the words "The Marshalltown line" it would seem that the idea is to solicit repair work and to sell furnaces at the same time. Therefore it would seem that a better idea would have been to have attacked the problem by showing some illustrations of the enjoyment and security the head of the house felt in the thought that he had his family well protected.

We also note that there is no mention of the Standard Furnace Code in the ad. We believe it is important that the public becomes acquainted with the Code and what it stands for just as quickly as possible, and that every furnace installer should find a way to include a mention of it in each and every piece of advertising which he sends out. It is only by tying up his advertising with what the research professors have done that the furnace installer can take full advantage of their work. The fact that a furnace is installed according to the Standard Furnace Code will not mean anything to the public until that Standard Furnace Code is brought to their attention and interpreted in terms which they not only can understand, but in terms that will make them want to use the kind of service that the Code installed warm air heating system has to offer.

We may have all the dictionaries in the world on our desk, but what good are they unless we understand how to use them? The very fact that Mr. Rosel obtained the results he did from the advertisement as it now stands will undoubtedly encourage him to improve it in every way

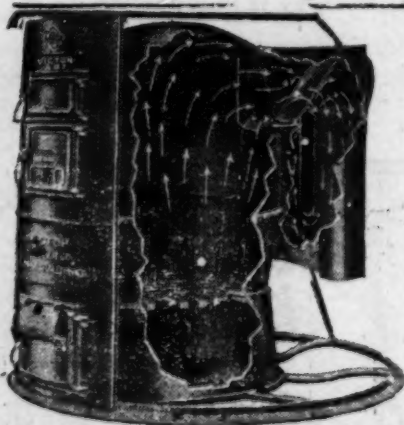
Dont Overlook the Furnace

**One Winter That's Tough
Is Always Experience Enough**

It is the wise man who prevents his furnace from giving poor service by checking up on his heating plant this winter.

NOW IS THE TIME

to look after these things and let us put your heating system in good working order.



**THE
MARSHALLTOWN
LINE**

Generously full dome
and combustion
chamber.
Special frictionless
duplex grates.
Extra large and deep
ash pit.
Extra large double
feed door.

ST. ANSGAR TIN SHOP

"Quality Work with Quality Goods"
Telephone 2943

Warm Air Furnace Repair Advertisement Which Brought Good Results for the St. Ansgar Tinshop

subscription price. We appreciate these few words because they inspire us to do better work and to make AMERICAN ARTISAN ever better than it has been in the past.

A short time ago one of these complimentary letters came in from Wilmer Rosel, proprietor of the St. Ansgar Tinshop, St. Ansgar, Iowa. In his letter Mr. Rosel stated that he had read our appeal to send in

business and several live warm air furnace prospects. The paper in which it ran was a weekly. Of course the ad was somewhat larger than it appears here.

There is no criticism to make on the mechanics of this advertisement. Mr. Rosel had a definite message to deliver when writing the ad and he has done it in a most effective manner. The headline is good. The

he possibly can so as to increase its usefulness.

You may think that the details of the system should be left to be brought out in a personal interview. True, they should. But you have got to tell your audience enough in the fleeting glance that they have of your advertisement to arouse their interest; you've got to give them enough bait, so to speak, to make them indicate at least that they are interested. It would seem that the words: "Generously full dome and combustion chamber" would not mean as much to a prospective purchaser, for instance, as some other combination of words which would tend to show the prospect how he or his are going to benefit by having a warm air heating system in preference to some other type of system. The words, "Extra large double feed door," will probably mean more to the prospect than any of the other combinations found in the ad, because he undoubtedly has had some experience in striking the side of the furnace instead of the open door when firing it. If not, however, it won't mean any more to him than "Special frictionless duplex grates."

Western Warm Air Furnace and Supply Association Will Meet May 21 and 22

The following is the program of the mid-year meeting of the Western Warm Air Furnace and Supply Association, which will be held in the Hotel Sherman, Chicago, Friday and Saturday, May 21 and 22, 1926:

Friday, May 21

Address by President D. E. Cummings will open the session at 10 a. m. Chicago city time.

Report of Secretary John H. Hussie.

Report of Treasurer John B. Fehlig.

An address by L. Wayne Army, Director Public Relations, National Warm Air Heating and Ventilating Association, on "Next Year in the Furnace Industry."

Appointment of Committees.

Address by G. C. Carnahan, of the Peoples Gas Light and Coke

Company, Chicago, on "The Application of Gas to Warm Air Heating."

Start Something Hour. All the time required will be given to this now famous period. Many of the good things accomplished by the association would not have seen the light of day but for the "Start Something Hour."

Saturday, May 22

Report of publicity committee, by R. C. Walker, Chairman.

Report of Code and Furnace Rating Committee, by George Harms, Chairman.

Report of the Standardization Committee, by Fred L. Nesbit, Chairman.

Report of Membership Committee, by H. W. Symonds, chairman.

Address by B. K. Eaton, Winslow Boiler and Engineering Company, Chicago, on "Is Oil Burning Equipment in Furnaces a Success?"

Selection of next meeting place.

Warm Air Furnace Men Display at Oil Burner Manufacturers Convention.

Many warm air furnace manufacturers exhibited at the Annual Oil Burner Manufacturers' Association Convention, held in Detroit, Michigan, recently.

Among some of those who exhibited were:

The Meyer Furnace Company, Peoria, Illinois, exhibited the Weir oil burning furnace, which in the last few years has been developed to meet the exacting requirements of oil-burner installations. This furnace is built of steel plate, electrically welded at all points and incorporating considerably more heating surface than is common in the average warm air furnace.

The Lennox Furnace Company, Marshalltown, Iowa, had on display the Torrid Zone furnace, which is built of heavy steel plate with all joints riveted and caulked.

American Blower Company, Detroit, exhibited a complete line of Sirocco fans and complete Sirocco utility motor driven blowers. A special feature was the use of a small utility blower with a special

nozzle attachment through which a balloon about 2 feet in diameter was kept suspended in the air 8 or 10 feet above the booth.

The Waterman-Waterbury Company, Minneapolis, Minnesota, exhibited one of the largest models of its seamless oil-burning furnace. It is stated that this model has been on the market for seven years and that it is especially adapted to use with oil burners.

Honeywell Heating Specialties Company, Wabash, Indiana, displayed complete control equipment on attractive panels, enabling visitors to see the actual working operation of each unit. The new Honeywell oil and gas valves were on display for the first time. This device is an electric motor-actuated valve in one unit. It may be supplied in three types, metering, non-metering and high-low flame. The Honeywell Masterstat and other well-known specialties were on display. The company was represented by eleven men from its home organization.

Minneapolis Heat Regulator Company, Minneapolis, Minnesota, occupied three booths with a complete line of automatic heat-control mechanisms for oil burners. In addition to the well-known Series 10 relay and the standard line of motor program-switches, room thermostats and boiler limiting controls, the new Protectostat was for the first time shown. Another new product exhibited was the Safe Flow oil valve, which eliminates the need of an intermediate service tank and pump, where installation codes require that not more than 50 gallons of oil may be available for supply to the burner by gravity.

Independent Register Now Placed in New Location at Cleveland

The Independent Register & Manufacturing Company, makers of the "Fabrikated" Cold Air Faces, Cleveland, Ohio, are now located in their new and improved plant, which is situated at 3747 East 93rd Street, Cleveland.

Ernest C. Fox, who is always

seen at all of the conventions, is the proprietor and manager of the Independent Register & Manufacturing Company. John A. Thomas is Sales Manager.

Southern Hardware Jobbers Confer Medals of Honor on Old Guard Members

At a call meeting of the Old Guard Southern Hardware Salesmen's Association Friday at noon, May 7, the Southern Hardware Jobbers' Association conferred the medal of honor upon the following members: Frank A. Bernet, Joseph M. Hottel, George H. Harper, Frederick M. Huggins, Joseph H. Grubb, F. Herbert Smith, Nelson A. Glad-

ding and Robert P. Boyd.

President Mark Lyons of the Hardware Jobbers made the presentation speech, which was most eloquent and he paid a beautiful tribute to the Old Guard members, and N. A. Gladding and F. Herbert Smith responded for the members of the Old Guard.

The recipients of the medals are duly proud of this honor, which is especially noteworthy, as during the thirty odd years of the existence of the Jobbers' Association, they have conferred this honor upon only seventeen men.

The medal of the Roll of Honor symbolizes the ribbon of the Grand Cross of the Legion of Honor for the Southern Hardware trade.

A Tribute to the Memory of Henry P. Chenoweth, Who Died April 20*

Was a Member of the Old School of Traveling Men—He Never Lost Customers

By CHARLES H. IRELAND

THERE'S a pall upon every buyer's office in Southern hardware houses today because a friend and companion has gone on his long, long trip.

How like a weaver's shuttle the threads of our lives are spun out upon the quill of time: Some lives are so full that when we view them in their best in life, it seems as if the thread would last on forever, and such was dear, old Henry. Big bodied — big hearted — with wide sympathies — capable of great friendships—born on a day of sunshine—he never let go of its rays of gladness, but radiated its light wherever he went.

He was of the old school of traveling men. He sold goods not by reason of the factories he represented, but simply because it was Henry. He never lost customers. He held them by his own personal-

ity. Possibly, there was no man known in the traveling fraternity who had a greater number of friends—who was more universally loved—than he.

When we looked at him it seemed as if he would live on and on forever. The world could ill afford to spare one with such genial qualities—known by all who came in contact with him. Alas, though, the destroyer knows no favorites, and in the very midst of his activities he was stricken down and taken from us—his face to appear no more in the gatherings of the hardware trade.

Loyal to his friends—faithful to the interests committed to his care—honest and upright as the day—he had no enemies and his big heart rests today in a bosom that was as expanded as his magnificent frame in behalf of any who were in trouble or disappointment or sorrow.

There will be a sadness and a catch of breath by every buyer in the Southern states, who knew him; and many is the face that will bear a stern exterior, while tears of re-

gret will be wiped from the eyes of those who have never been regarded as being at all sentimental. A feeling of sadness will pervade hundreds of offices throughout the length and breadth of this great Southland, because of the taking away of this splendid and genial friend and companion.

Peace to his ashes! God rest his soul and bring it unto the light of that glorious day when the Son of Man shall look upon him and say, "For I was an hungered, and ye gave me meat: I was thirsty, and ye gave me drink; I was a stranger, and ye took me in: Naked, and ye clothed me: I was sick, and ye visited me: I was in prison, and ye came unto me." Immediately Henry shall answer back, "Lord, when saw I Thee in these conditions?" Then the Lord shall say unto him, "Because ye did it unto my brethren ye did it unto me. Enter into the joy of thy Lord."

Dear Ole Henry — good-by friend!
April 20, 1926.

Chandler Hardware Have Art of Circularization Down to Fine Point

The Chandler Hardware Company of Sylvania, Ohio, are past masters at the art of direct-by-mail circularization. They have a certain knack about their method that goes over big.

Here's a reproduction of a letter which they sent out recently soliciting business for a certain cooker. The letter was dated "Cooking Time" and addressed to "When Women Get Together." It was signed by R. A. Chandler, Secretary-Treasurer. The letter has for a complimentary closing "Yours for Easy Housework."

"Have you ever stopped to consider the innumerable things women talk about when they get together?"

"The conversation usually starts with comments on the new Jones baby and then turns to operations, cloud bursts and biscuit baking. Every woman prides herself on her cooking and her ability to spend at

*Paper written in memory of Henry P. Chenoweth by Charles H. Ireland and read by Secretary John Donnan at the convention of the Southern Hardware Jobbers Association, Hotel Atlanta - Biltmore, Atlanta, Georgia, the first week in May.



THESE MEN can build ETERNITY into your walls

THE beauty of your walls depends on these men—the Plasterer and the Plaster. More than eighty-five per cent of the cost of a new home is their work. With expanded metal mesh made from Sheet Steel—this beauty becomes permanent. The plaster will endure as long as the building. The ugliness of cracked and broken plaster and loose joints as well as can never mar your walls. The cost of continuous repair and redecoration is thereby eliminated.

Plaster on metal lath is rated one hour protection by the Underwriters' Laboratories as against four minutes for plaster on combustible lath.

And Sheet Steel prolongs the life of buildings in many other ways. A steel roof, properly grounded, is lightning safe. Live sparks and flaming embers harmlessly burn themselves out. In the form of Spanish or French Tile, Sheet Steel gives unusual beauty with its delightful contrasts of light and shade.

Our lath is...



An Insurance Policy that cannot lapse

In a recent \$750,000 conflagration in Alabama an investigation revealed the insurance companies paid less than \$300,000 or about forty per cent of the total damage. Lapsed and incomplete policies accounted for the rest, and the property owners paid the bill. Not one of these owners ever expected this would happen to him but—

The use of Sheet Steel on a building material on the farm reduces to a minimum the possibility of fire. It gives you a property insurance that works 24 hours a day and every day in the year. Sparks from a threshing machine or flaming embers from a brush fire harmlessly burn themselves out. The steel roof, also, when properly grounded, effectively ends damage from lightning. When lightning strikes a steel roof the thin sheet of fire runs down the roof to the ground and out and down the wire to the ground without ceasing. Whether the building be occupied by a dozen people, half a dozen trucks or tractors, fifteen head of cattle or a hundred tons of hay, the lightning cannot reach the inside of the building.

The biggest fire insurance company in the country can't stop lightning, but Sheet Steel can. Sheet Steel coverage does more. Through

long years of service, the steel roof resists sun, wind and rain. In short, the Sheet Steel roof affords complete protection from weather, from fire and from lightning for every farm building—house, cattle shed, machinery shed or barn. Many farmers have found the protection given by the material so unusual that side walls as well as roofs have been made of Sheet Steel, particularly for garages, hay barns and other structures where there is an unusual fire hazard.

Another farm loss that can be largely eliminated by Sheet Steel is that due to rats or rodents. Rats are responsible for a yearly damage in the United States of over two million dollars. But Sheet Steel cannot grow his way through Sheet Steel garages, vegetable cellars or cupboards. Many farmers have entirely rid their property of these pests through the use of Sheet Steel. Rats do not enter where they are kept on starving rodents.

Our booklet, "THE SERVICE OF SHEET STEEL TO THE FARMER," has been compiled especially for the farmer. It explains in detail the many uses for Sheet Steel on the farm and how to determine the thickness and gauge you need for different purposes. The book is free. Send for it.

SHEET STEEL™
TRADE EXTENSION COMMITTEE
OLIVER BUILDING
PITTSBURGH PENNSYLVANIA



How Farmers Are Using Sheet Steel to Increase Income and Lower Expense

ed in the form of the plow was the first factor in bringing prosperity to the who worked the land.

for many years this same material in form of sheets has been helping farmers to prosper and prosper.

Steel tanks are providing an abundance of water for stock. Consequently, and poultry yards with running water, the comforts and conveniences of the city home are extended to the Wisconsin farmer.

The farm building investment in the United States totals \$12,000,000,000. Much of this property is protected by Sheet Steel—the greatest fire retardant of them all. Sparks from threshing machines, embers from brush fire, and even flames from adjoining buildings are rendered harmless by the Sheet Steel surface. In addition, when properly grounded, a Sheet Steel building is lightning safe.

Selling the Service of Sheet Steel to 10,000,000 Buyers

All classes are being reached through the Sheet Steel Trade Extension Committee advertising—architects, builders, home owners, business men, farmers, manufacturers and sheet metal fabricators and contractors—in all more than 10,000,000 subscribers.

Each class is being appealed to from its own angle, from the particular viewpoint from which it regards the service of Sheet Steel. As the campaign gains headway, it will be multiplied many times through its reflection in the sales efforts of dozens of industries.

There is a definite trend towards Sheet Steel. Actually Sheet Steel production has increased more than 400 per cent since 1909. This is indicative of the growth in public preference for Sheet Steel and Sheet Steel products.

The public knows Sheet Steel resists fire and lightning—that it is strong, durable and economical. The Sheet Steel Trade Extension campaign is crystalizing this indefinite consciousness into a definite public buying preference.

SHEET STEEL™
TRADE EXTENSION COMMITTEE
OLIVER BUILDING
PITTSBURGH PENNSYLVANIA



This trade-mark stenciled on galvanized Sheet Steel is definite insurance to the buyer that every sheet so branded is of prime quality—full weight for the gauge stamped on the sheet—never less than 28 gauge—and that the galvanizing is of the full weight and quality established by the Sheet Steel Trade Extension Committee specification.

least a major portion of her time away from the kitchen drudgery.

"You don't need to kindle a fire long before you are ready to start cooking, and then have it heating up the entire house, long after you are through. A blank can be lighted in a minute, and turned off instantly.

"Sturdily built, handsome in design and finish, the blank cooker is more popular than ever with the housewife who cares. Its cleanliness will appeal to you, and its service so like city gas, brings comfort the year around.

"From the low handy bungalow type to the large range, you will find these stoves easy to operate. As they burn 95 per cent air and 5 per cent gas vapor, they keep your fuel bill at a minimum. The fact is, 3 cents worth of fuel will cook the average meal.

"A complete demonstration cheerfully given you at our store during the week of May 17th to 22nd, when a blank factory representative will be with us."

With the letter was enclosed a pamphlet describing the blank stove in detail.

How Can the Salesmen Give You Valuable Ideas.

How many salesmen called on you last year? Two hundred? If so, you had two hundred opportunities to enrich yourself with business information—free.

Generally speaking, ideas cost a great deal of money, yet without them we would make no progress. Sound business information is usually to be found at conventions, association meetings, or other sources that cost more or less money, but such information, however, is a business necessity.

If you could travel, as salesmen do, visiting dealer after dealer over a wide territory, you could gather an equally rich and varied fund of practical merchandising knowledge, but you cannot spare the time, owing to duties of your store. Therefore, it pays to keep your ears wide

open and your mood receptive when a salesman calls.

You may not need his goods, but you need all the information you can get out of him. Ask him questions. Listen to the answers. If you do this consistently you will be handsomely rewarded for your efforts, for, while all salesmen are not so endowed with merchandising ideas, many of them are, and you can get enough from the few to pay for the effort directed to all.

The suggestion is do not be too busy to see the salesmen as they call, as they usually have a constant stream of money-making ideas ready to hand over to the alert dealer.

National Hardware Men to Hold Annual Convention at Hotel Ambassador, Atlantic City, Week of October 18

The National Hardware Association will hold its annual convention at the Ambassador Hotel, Atlantic City, New Jersey, during the week of October 18, 1926.

This decision was reached at a meeting of the Executive Board of the association held at the Hotel Gibson, Cincinnati, May 12. All business sessions, including the joint meetings with the American Hardware Manufacturers' Association, will be held at the Ambassador Hotel, it was determined.



Arkansas Retail Hardware Association, Little Rock, Arkansas, May, 1926. L. P. Biggs, Secretary, 815 Southern Trust Building, Little Rock.

Western Warm Air Furnace and Supply Association mid-year meeting, Sherman House, Chicago, May 21 and 22. Secretary John H. Hussie, 2407 Cumming Street, Omaha, Nebraska.

Kentucky Sheet Metal and Roofing Contractors' Association, Kentucky Hotel, Louisville, May 24, 1926. O. E. Hutchison, Secretary, 1526 Christy Avenue, Louisville.

National Association of Sheet Metal Contractors, Louisville, Kentucky, May 24 to 28, 1926. Edwin L. Seabrook, Secretary, 608 East Chestnut Street, Philadelphia, Pennsylvania.

American Society of Heating and Ventilating Engineers, Lexington, Kentucky, May 26 to 28, 1926. A. V. Hutchinson, Manager of Publications, 29 West 39th Street, Aurora, Illinois.

Carolinas Hardware Association, Raleigh, North Carolina, June 8 to 10, 1926. A. R. Craig, Secretary, 717-18 Commercial Bank Building, Charlotte, North Carolina.

Mississippi Retail Hardware and Implement Association, Biloxi, June 21, 22 and 23, 1926. Guy Nason, Secretary Starkville.

National Retail Hardware Association 27th Annual Congress, June 21 to 24, 1926. Herbert P. Sheets, Secretary, 915 Meyer Kiser Bldg., Indianapolis, Indiana.

Retail Hardware Doings

Arkansas.

Massey Hardware Company has opened for business at Russellville.

Illinois.

Robert Cunningham purchased the hardware store of W. H. Gibbs at Winnebago.

Indiana.

The Gaddis Hardware Company at Frankfort has been damaged by fire.

Iowa.

The Hazelton Hardware Store, Hazelton, has been sold by the owners, Richards and Moore, to W. H. Nelson.

Kansas.

Tepe Brothers Hardware Store of Dodge City has been taken over by Homer Tepe.

Vern Ford has sold his hardware business at Enterprise to W. F. Nuenzenmeyer.

Wilson Wright Hardware Company at Ottawa has been sold to A. N. Noble and E. V. Gibson.

Kentucky.

The Norman Brock Hardware Store at Campbellsburg has been damaged by fire.

Michigan.

Sallen-Eastberg Hardware Company has opened for business in the Spies Building, Menominee.

Nebraska.

Bersche and Bockholdt hardware and implement business at Plymouth has been taken over by W. F. Bersche.

Annual Heat Losses in Poorly Built Homes Tremendous.

According to figures compiled by the Better Building Registry, heat losses in the average poorly-built home, over a period of twenty years, amount to more than \$4,500.00. On this basis, flimsy construction, the absence of insulating material and weather stripping, failure to cover steam or furnace pipes, loosely-built walls and defective chimney flues and heating plants cost the home owner, in a city like Chicago alone, more than \$50,000,000 a year and in the nation as a whole, more than \$450,000,000.

UNISHEAR

Portable and compact, Unishear cuts *any flat stock* quicker, better, cheaper—without burr, without distortion of material. Follows any line exactly, stops accurately at any point.

Needs but one operator even on largest work, straight or irregular.

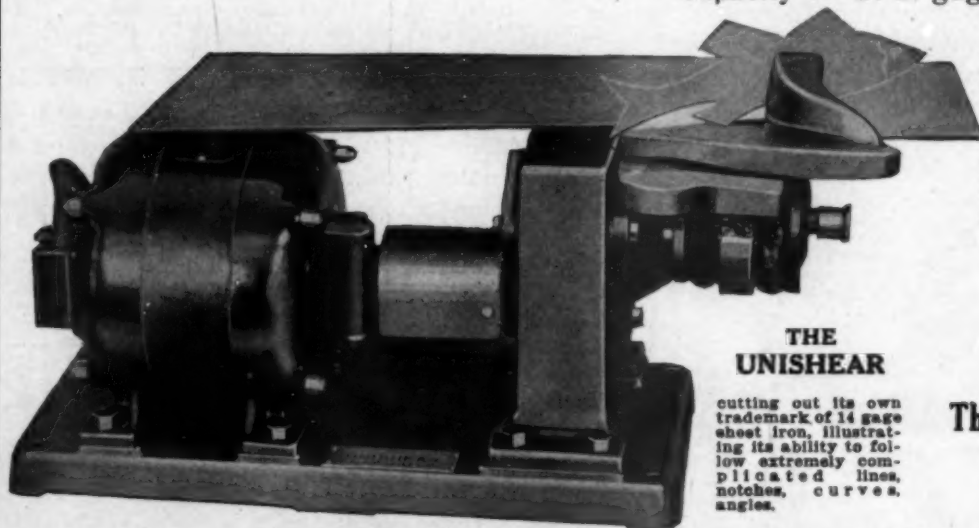
Operates from lamp socket or power circuit. "General Electric Motor" any Voltage or Cycle Available.

Capacity 14 U. S. gage Sheet Steel.

Speed fifteen feet per minute.

Ask us to demonstrate this machine on your work.

Dealers and Salesmen wanted in unassigned territory.



THE UNISHEAR

cutting out its own trademark of 14 gage sheet iron, illustrating its ability to follow extremely complicated lines, notches, curves, angles.

The Unishear Co., Inc.

170 FIFTH AVENUE
NEW YORK, N. Y.

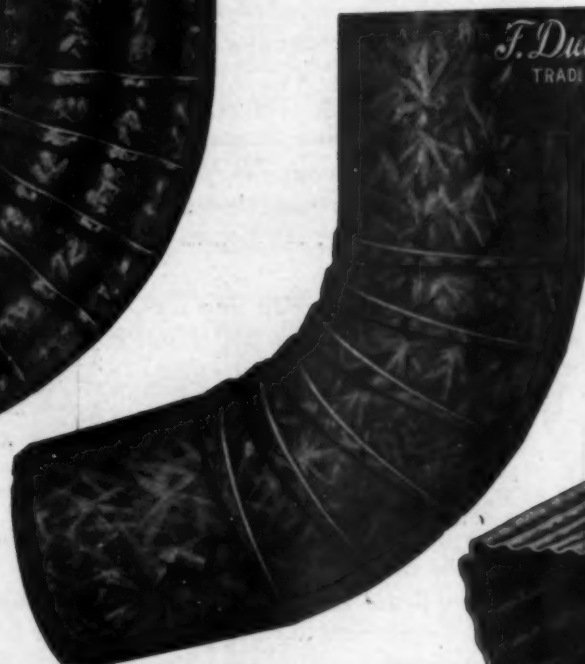
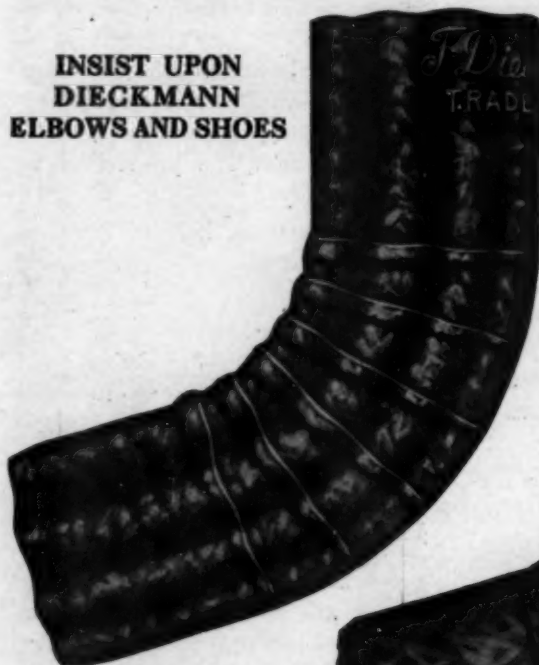
(For export apply to: Unishear Corporation, 104 Fifth Avenue, New York, N. Y.)

INSIST UPON
DIECKMANN
ELBOWS AND SHOES

F. Dieckmann

TRADE MARK

ALL JOBBERS HAVE
THEM OR CAN GET
THEM FOR YOU



The Ferdinand Dieckmann Co. P. O. Station B,
Cincinnati, Ohio

Say you saw it in AMERICAN ARTISAN—Thank you!

Steel Demand Still Uncertain—Sales of Finished Steel Spotty with Plates and Shapes More Active

*Buying Light but Prices Hold Well in Nonferrous Metals
—Pig Iron Market 50 Cents Lower in Several Districts*

APPPEARANCE of new orders in encouraging volume is tending to offset the pessimism which pervades certain market districts.

Sales of finished steel are admittedly spotty, with some products, such as sheets, in the throes of a marked slump and others, including plates and shapes, in more active demand.

Additional evidence is appearing in Chicago to indicate that the low point in the present lull was passed ten days or two weeks ago.

Steel ingot production in Chicago territory is slightly below 90 per cent of capacity.

Effects of the slackened pace of buying are more pronounced in Pittsburgh where steelmaking proceeds on a 75 to 80 per cent basis.

Here several producers report bar specifications have fallen off sharply and specifications on many steel products are lagging behind shipments.

Zinc

Not much prime western has been sold lately, but business was done Saturday at 6.82½ cents East St. Louis for May shipment and some sold recently as high as 6.85 cents, but on Monday continued quietness resulted in lower prices though the ore market was unchanged at \$45.

Copper

Buying of copper has been unusually light in the past week but some metal has sold at 13.87½ cents Connecticut and 14.00 cents Middle West.

Shipments continue large, but it is thought that April statistics will be out in a day or two and will reflect a situation not quite so strong as that shown a month ago.

On Monday the market was a trifle easier in some quarters than a few days earlier.

Lead

The recovery in London today has been reflected here to some extent and the market has firmed up.

One Middle West smelter is well sold on prompt metal and reports inquiry for June metal.

The American Smelting & Refining Co. today cut its price to 7.75 cents; New York.

Tin

In this market Straits tin advanced ½ cent a pound on prompt deliveries, ⅝ cent on futures, and quite a fair business has been done at the higher levels. At the call on the Metal Exchange 100 tons April-May shipment from the Straits equivalent to August delivery New York was sold at 58.65 cents with that position closing at 58.50 cents bid, 58.70 cents asked. Later in the afternoon sellers were asking 58.75 cents for August.

For guaranteed delivery next week 64.50 cents is quoted and 64 cents for sellers' option for all of May.

First half June is held at 62.25 cents, the whole month at 61.75 cents, July 59.62½ cents and August after selling, as noted above, at 58.65 cents is held at 58.75 cents.

Pig Iron

Activity in steelmaking iron features this week's market.

A nearby sheet interest is commencing to take figures on 5000 tons of basic.

It regards the market as \$18, valley, but \$18.50, valley, generally is quoted, although some furnaces, steelworks and merchant may quote the latter figure at furnace, having a lower freight rate to that particular destination.

One West Virginia sheetmaker also is understood to be buying basic

from a nearby source at lower than an \$18.50 valley equivalent.

A nearby mold manufacturer purchased 1000 tons of bessemer at \$19.50 valley.

A local malleable manufacturer is understood to have closed for a round tonnage of malleable at \$19 valley.

Malleable and No. 2 foundry iron are now quoted at \$21.50, Chicago furnace, and No. 1 foundry at \$22, a reduction of 50 cents.

This is the second price adjustment in five weeks and makes a total of \$1.50 that northern iron is off from the recent high.

An inquiry is current for 500 tons of low phosphorus. Silvery activity includes the sale of 50 tons and inquiry for a like amount.

At Birmingham pig iron sales are less numerous than a few weeks ago and tonnages are smaller, but the market is firm and production is near capacity.

Quotations are held at \$22 for No. 2 foundry.

Old Metal

Wholesale quotations in the Chicago district, which should be considered as nominal, are as follows: Old steel axles, \$17.50 to \$18.00; old iron axles, \$25.50 to \$26.00; steel springs, \$18.50 to \$19.00; No. 1 wrought iron, \$13.00 to \$13.50; No. 1 cast, \$15.50 to \$16.00, all per net tons. Prices for non-ferrous metals are quoted as follows, per pound: Light copper, 9 cents; zinc, 5 cents, and cast aluminum, 19 cents.

Solder

Chicago warehouse prices on solder are as follows: Warranted 50-50, \$39.50; commercial 45-55, \$37.00, and plumbers', \$34.50, all per 100 pounds.

EVERYTHING USED IN SHEET METAL WORK

A Complete Stock Insures Prompt Shipment

In our warehouse you will find one of the most complete stocks in the country. Not only complete as to quantity but selected by men who have had many years of experience.

There are 12 men in our employ who have been with us a total of 261 years—an average of 22 years per man. It is the knowledge resulting from this experience that we offer you in Osborn Service.

The J. M. & L. A. OSBORN CO.
CLEVELAND

Buffalo Warehouse, 64-68 Rapin Street



Painted Shingles and

Two kinds of Galvanized Shingles

Cortright Metal Shingles are made of tin-plate and painted either red or green.
Cortright Hand Dipped Galvanized Shingles are stamped from prime tin-plate and immersed one at a time in molten zinc.
Cortright Stamped Shingles are made from galvanized sheets which come already galvanized.
We'll gladly send our book, "Concerning That Roof."

CORTRIGHT METAL ROOFING CO.
50 N. 23rd Street, Philadelphia
525 S. Clark Street, Chicago

CORTRIGHT METAL SHINGLES

Memorial Monuments

Write for Prices and
Illustrations

Gerock Bros. Mfg. Co.

Sheet Metal Ornaments
and
STATUARY

1252 So. Vandeventer Ave.
St. Louis, Mo., U. S. A.



KESTER SOLDER

Self-Fluxing



(Underwriters' Laboratories Inspected)

"Requires Only Heat"

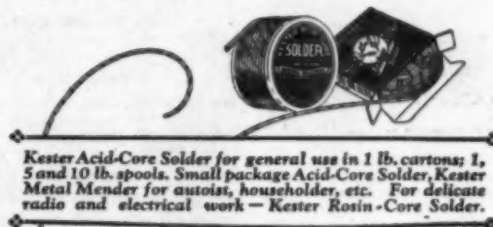


On New Work

ON NEW WORK where time saved on the job means a better profit, the wise tinner uses Kester Solder. Soldering time is a big item in the sheet-metal world and a saving of one-third on this item should be welcomed by everyone.

Common solder needs three operations (solder—flux—heat). Kester only two, because it "requires only heat." Kester supplies its own scientific flux from tiny pockets inside itself as it is used.

That's why you save one-third of your soldering time with Kester. Increase your net profit by using Kester Solder from now on.



Kester Acid-Core Solder for general use in 1 lb. cartons; 1, 5 and 10 lb. spools. Small package Acid-Core Solder, Kester Metal Mender for autoist, householder, etc. For delicate radio and electrical work—Kester Rosin-Core Solder.

Manufactured by the
CHICAGO SOLDER COMPANY
4241 Wrightwood Ave.
CHICAGO, U. S. A.

Chicago Warehouse Metal and Furnace Supply Prices

AMERICAN ARTISAN AND HARDWARE RECORD is the only publication containing Western Hardware and Metal prices corrected weekly.

METALS

PIG IRON

Chicago Foundry.....	\$22 00
Southern Fdy., No. 2, 27 01	25 01
Lake Superior Charcoal.....	29 04
Malleable	22 00

FIRST QUALITY BRIGHT TIN PLATES

IC 20x28 112 sheets.....	\$25 10
IX 20x28.....	29 00
IXX 20x28 56 sheets.....	16 20
IXXX 20x28.....	17 55
IXXXX 20x28.....	18 95

TERNE PLATES

	Per Box
IC 20x28, 40-lb. 112 sheets	\$27 90
IX 20x28, 40-lb. " "	30 90
IC 20x28, 25-lb. " "	22 20
IX 20x28, 25-lb. " "	25 20
IC 20x28, 20-lb. " "	20 25
IX 20x28, 20-lb. " "	23 00
IC 20x28, 15-lb. " "	16 55
IX 20x28, 15-lb. " "	15 25

"ARMCO" INGOT IRON PLATES

No. 8 ga. up to and including	
1/4 in.—100 lbs.....	4 55

COKE PLATES

Cokes, 80 lbs., base, 20x28.....	\$12 60
Cokes, 90 lbs., base, 20x28.....	12 80
Cokes, 100 lbs., base, 20x28.....	13 00
Cokes, 107 lbs., base, 10	
20x28.....	13 30
Cokes, 135 lbs., base, IX	
20x28.....	15 70
Cokes, 155 lbs., base, 56	
sheets.....	8 70
Cokes, 175 lbs., base, 56	
sheets.....	9 55
Cokes, 195 lbs., base, 56	
sheets.....	10 40

BLUE ANNEALED SHEETS

Base 10 ga.....per 100 lbs.	\$2 50
"Armco" 10 ga.....per 100 lbs.	4 00

ONE PASS COLD ROLLED BLACK

No. 18-20.....per 100 lbs.	\$2 30
No. 22-24.....per 100 lbs.	3 35
No. 26.....per 100 lbs.	3 90
No. 27.....per 100 lbs.	3 95
No. 28.....per 100 lbs.	4 10
No. 29.....per 100 lbs.	4 10

GALVANIZED

"Armco" 28.....per 100 lbs.	\$6 70
No. 16.....per 100 lbs.	4 50
No. 18-20.....per 100 lbs.	4 95
No. 22-24.....per 100 lbs.	4 80
No. 26.....per 100 lbs.	4 95
No. 27.....per 100 lbs.	5 10
No. 28.....per 100 lbs.	5 25
No. 30.....per 100 lbs.	6 75

BAR SOLDER

Warranted	
50-50.....per 100 lbs.	39 50
Commercial	
45-55.....per 100 lbs.	27 00
Plumbers.....per 100 lbs.	34 50

ZINC

In Slabs.....	8 50
---------------	------

SHEET ZINC

Cash Lots (600 lbs.).....	13 75
Sheet Lots.....	14 75

BRASS

Sheets, Chicago base.....	13 1/2c
Mill base.....	13 1/2c
Tubing, brazed base.....	27 1/2c
Wire, base.....	15 1/2c
Rods, base.....	16 1/2c

COPPER

Sheets, Chicago base.....	22 1/2c
Mill base.....	22 1/2c
Tubing, seamless base.....	25 1/2c
Wire No. 9 & 10, B & S. Ga.	20 1/2c
Wire No. 11, B & S. Ga.....	20 1/2c

HARDWARE, SHEET METAL SUPPLIES, WARM AIR FURNACE FITTINGS AND ACCESSORIES.

LEAD

American Pig.....	\$ 8 55
Bar.....	9 55

Sheet

Full Coils.....per 100 lbs.	14 00
Cut Coils.....per 100 lbs.	14 25

TIN

Pig Tin.....per 100 lbs.	70 00
Bar Tin.....per 100 lbs.	71 00

ASBESTOS

Paper up to 1/16.....	6c per lb.
Roll board.....	6 1/2c per lb.
Mill board 1/32 to 1/4.....	6c per lb.
Corrugated Paper (250	
sp. ft. to roll).....	\$5.00 per roll

BRUSHES

Hot Air Pipe Cleaning	
Bristle, with handle, each	\$ 2 25

Flue Cleaning

Steel Only, each.....	1 25
-----------------------	------

BURRS

Coppers Burrs only.....	45c
-------------------------	-----

CEMENT, FURNACE

American Seal, 5-lb. cans, net	\$ 4 50
American Seal, 50-lb. cans, net	30
American Seal, 25-lb. cans, net	2 00
Asbestos, 5-lb. cans, net.....	45
Pecora.....per 100 lbs.	7 51

CHIMNEY TOPS

Iwan's Complete Rev. &	
Vent.....	30c
Iwan's Iron Mountain only.....	35c
Standard.....	20 to 40c

CLINKER TONGS

Front Rank, each.....	\$ 75
Per doz.....	8 40

CLIPS

Acme, with tail pieces,	
per doz.....	\$1 25
Non Rivet tail pieces,	
per doz.....	25

COPPERS—Soldering

Pointed Roofing	
1 lb. and heavier.....per lb.	40c
2 1/2 lb.per lb.	45c
3 lb.per lb.	45c
1 1/2 lb.per lb.	55c
1 lb.per lb.	60c

CORNICE BRAKES

Chicago Steel Bending	
Nos. 1 to 5B.....	Net

COUPLING HOSE

Brass.....per doz.	\$3 20
--------------------	--------

CUT-OFFS

Muehn's Korrekt Kutoffs:	
Galv., plain, round or cor. rd.	
standard gauge.....	40c
25 gauge.....	30c

DAMPERS

"Yankee" Hot Air	
7 inch, each 25c, doz.....	\$1 75
8 inch, each 25c, doz.....	2 40
9 inch, each 25c, doz.....	2 75
10 inch, each 25c, doz.....	3 00

Smoke Pipe

7 inch, each.....	\$ 25
8 inch, each.....	40
9 inch, each.....	50
10 inch, each.....	60
12 inch, each.....	90

Reversible Check

8 inch, each.....	\$1 50
9 inch, each.....	1 70

DIGGERS

Post Hole	
Iwan's Split Handle	
(Eureka)	
4-ft. Handle.....per doz.	\$14 00
7-ft. Handle.....per doz.	25 00
Iwan's Hercules pattern,	
per doz.....	14 00

EAVES TROUGH

Galv. Crimpedge, crated..75 & 1c	
----------------------------------	--

ELBOWS

Conductor Pipe Milcor.	
Galv., plain or corrugated,	
round flat Crimp.	
Std. Gauge.....	65c
25 Gauge.....	55c
26 Gauge.....	40c
24 Gauge.....	10c

Square Corrugated

Standard Gauge.....	50c
No. 25 Gauge.....	45c
26 Gauge.....	30c

Fertile Elbows

Standard Gauge Conductor Pipe,	
plain or corrugated.	
Not nested.....	70 & 5c
Nested solid.....	70 & 5c

ELBOWS—Stove Pipe

1-piece Corrugated, Uniform Blue	
"Milcor" No. 25 gauge.	
Doz.	
5-inch.....	\$1 15
6-inch.....	1 25
7-inch.....	1 75

Special Corrugated

6-inch.....	\$1 00
7-inch.....	1 40

Adjustable—Uniform Blue

"Milcor" No. 25 Gauge, Uniform	
Blue.	
5-inch.....	\$1.65
6-inch.....	1 75
7-inch.....	2 40

WOOD FACES—50% off list.

FENCE	
736-6-12% (100 rods).....	\$29 02
1948-6-14% (100 rods).....	44 08

FILES AND RAFFS

Heller's (American).....	50-10c
American.....	60-10c
Arads.....	50c
Black Diamond.....	40-10-5c
Eagle.....	50c
Great Western.....	50c
Kearney & Foot.....	50c
McClellan.....	50c
Nicholson.....	50c
Simonds.....	50c

FIRE POTS

Otto Berns Co.	
East of west boundary line of	
Province of Manitoba Canada,	
No. Dakota, So. Dakota, Nebras-	
ka, Kansas, Oklahoma Amaril-	
lo, San Angelo and Laredo,	
Texas.....	55c

West of above boundary 61c

Clayton & Lambert's	
East of west boundary line of	
Province of Manitoba Canada,	
No. Dakota, So. Dakota, Nebras-	
ka, Kansas, Oklahoma, Amari-	
llo, San Angelo and Laredo,	
Texas.....	52c

West of above boundary line

.....	48c
-------	-----

Geo. W. Diener Mfg. Co.

No. 02 Gasolene Torch, 1	
qt.....	\$ 5 50
No. 0250, Kerosene, or	
Gasolene Torch, 1 qt.....	7 50
No. 10 Tinner's Furn.	
Square tank, 1 gal.....	13 00
No. 16 Tinner's Furn.	
Round tank, 1 gal.....	13 00
No. 21 Gas Soldering Furn.	
nace.....	1 50
No. 110 Automatic Gas	
Soldering Furnace.....	10 50

Double Blast Mfg. Co.

Gasolene, Nos. 25 and 26.....	50c
-------------------------------	-----

Quick Meal Stove Co.

Vesuvius, F. O. B. St. Louis	20c
(Extra Discat. for large	
quantities)	

Chas. A. Homes, Inc.

Buxser No. 1.....	\$ 9 00
Buxser No. 2.....	12 00
Buxser No. 21.....	12 00
Buxser No. 43.....	15 00
Buxser No. 45.....	10 00

GALVANIZED WARE

Pails (Galv. after made),	
10-qt.....	\$2 25
Tubs (Galv. after made),	
No. 1.....	\$6 25
No. 2.....	7 20

GLASS

Single Strength, A, 25-in.	
brackets.....	55c
Single Strength, A, 34 to 40-	
in. bracket.....	32c
Single Strength A, all other	
brackets.....	81c
Double Strength A, all sizes.....	82c

HANGERS

Conductor Pipe	
Milcor Perfection Wire.....	24c
Eaves Trough	
Milcor Eclipse Wire.....	15c
Milcor Triplex Wire.....	10c
Milcor Milwaukee Extension 10c	
Milcor Steel (galv. after	
forming) List plus.....	12 1/2c
Milcor Selflock E. T. Wire.....	10c
List plus.....	10c

HOOKS

Box	
V. & B. No. 1, each.....	\$8 25
Conductor	
Milcor	
"Direct Drive" Wrought	
Iron for wood or brick.....	15c
Hay	
V. & B. No. 1, each.....	\$8 25

HUMIDIFIERS

"Front-Back," Automatic	
In single lots.....	50c
In lots of 10 or more.....	50-55c
In lots of 25 or more.....	50-10c
Vapor pans, etc., each.....	50c

LIFTERS

Stove Cover	
Coppered.....per grs.	\$5 00
Alaska.....per grs.	4 75

MALLETS

Tinner's	
Hickory.....per doz.	\$3 25

MITRES

Galvanized steel mitres, and	
caps, end pieces, cutlets.....	30c
Milcor	
Galv. one piece stamped.....	40c

NAILS

Cut Steel.....	\$4 25
Cut Iron.....	4 55
Wire	
Common.....	2 15
Cement Coated.....	2 70

(Continued on page 44)

ART METAL CEILINGS and SIDE WALLS

The kind that sell and satisfy

WE have just recently issued a new 108-page book of new designs—patterns that are up-to-date and good looking. We use only high grade metals and our machinery is the latest and best, producing clearly stamped figures.

Friedley-Voshardt Metal Ceilings are easy to erect—they fit and stay put—they sell and satisfy.

If you have not received a copy of our new catalog write for your copy today.

ZINC—COPPER—LEAD
STAMPINGS

*We are specialists in the field of Sheet Metal
Architectural Ornaments. Write for our catalog.*

Friedley-Voshardt Co.

Office: 733-737 S. Halsted St. Factory: 761-777 Mather Street
CHICAGO, ILLINOIS

VESUVIUS BLOW TORCHES



In pint or quart sizes
With quickly removable soldering iron
hooks.

Vesuvius Blow Torches are made of brass or non-corrosive oxydized terne plate. The latter is particularly recommended for hard usage.

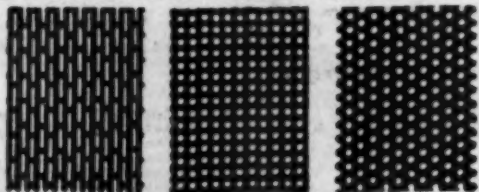
Write for prices and illustrated circular today

For Gasoline

QUICK MEAL STOVE COMPANY

Div. American Stove Company
825 Chouteau Ave. St. Louis, Mo.

PERFORATED METALS

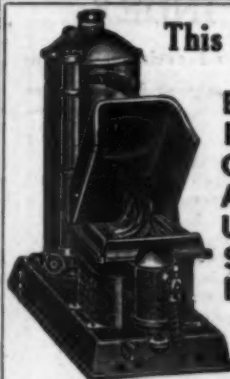


All Sizes and Shapes of Holes
In Steel, Zinc, Brass, Copper, Tinplate, etc.
For All Screening, Ventilating and Draining
EVERYTHING IN PERFORATING METAL

THE HARRINGTON & KING PERFORATING CO.

5649 FILLMORE ST.—CHICAGO, ILL. U. S. A.
NEW YORK OFFICE: 114 LIBERTY ST.

Read the Wants and Sales Pages



This Is the Fire Pot You Need WHY?

It always burns with a blue flame which produces **THE HEAT**.
A 2½ pound copper will heat and melt solder in **TWO MINUTES**.
The pot will generate and operate outdoors in **ANY KIND OF WEATHER**.
It will heat irons as fast as they are cooled. No time wasted.
Less than a gallon of gasoline is used in a day.
It is smokeless and odorless while in operation.
It can be turned down low when not in use.

Order yours now. Only \$17.00 f. o. b. factory. Two per cent discount when cash accompanies the order.

No. 25 Double Blast
Gasoline Fire Pot

DOUBLE BLAST MFG. CO., Inc.
Commonwealth Ave. North Chicago, Ill.



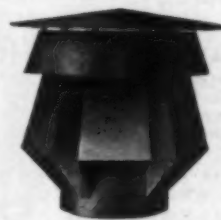
Torrid

"Torrid" Tinner's Furnaces

have stood the test of time. Imitations come, go, are changed but "Torrid" standard is unalterable and price always right.

GEO. W. DIENER MFG. CO., CHICAGO

Makers of fine Blow Torches and Fire Pots.



The 12-Cylinder Ventilator
Used in Every State
in the Union.

**SPECIFY AEOLUS
VENTILATORS**

ÆOLUS FOR HOMES

The home should be properly ventilated—few of them are. Here is a sales opportunity often overlooked by the average Sheet Metal Worker, but one which offers a lucrative business to those who take advantage of it.

Æolus-Dickinson Co.

Vent Makers Since 1888

3332-53 South Artesian Avenue
CHICAGO

Phone: Lafayette 1862-1863

50-INCH FORMING ROLL

This Forming Roll is built in all standard sizes, with our Patented Opening Device by means of which it is opened and closed in a few seconds.

We build a complete line of Shears and Punches, all sizes, for hand or belt power.

Write for Catalog "R"
BERTSON & CO., Cambridge City, Ind.



C. G. HUSSEY & CO.

Rolling Mills and Office, PITTSBURGH, PA.

Manufacturers of
SHEET COPPER, BOTTOMS, ROLL COPPER, TINNED and POLISHED COPPER, NAILS, SPIKES, RIVETS, CONDUCTOR PIPE, EAVES TROUGH, ELBOWS, SHOES, MITRES, CORRUGATED COPPER SHEETS, CRIMPED COPPER SHEETS, COPPER WALL TIES, COPPER LATH, ETC.

Branch Warehouses in New York, Philadelphia, Cincinnati & Chicago
Member, Copper & Brass Research Association

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		Wise Furnace Co.	—

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NETTING, POULTRY		ROOFING	
Galvanized before weav-	45-10%	Best grade, slate surf. prep'd	32 50
Galvanized after weav-	45%	Best tale surfaced.....	3 00
		Medium tale surfaced.....	3 00
		Light tale surfaced.....	1 20
		Red Rosin Sheeting, per ton	57 50
PASTE		SCREWS	
Asbestos Dry Paste:		Sheet Metal	
200-lb. barrel.....	\$15 00	No. 7, 1/2x1/4, per gross....	\$9 50
100-lb. barrel.....	1 00	No. 10, 1/2x1/4, per gross....	65
35-lb. pail.....	1 25	No. 14, 1/2x1/4, per gross....	55
10-lb. bag.....	1 00		
5-lb. bag.....	55		
3 1/2-lb. cartons.....	30		
PIPE		SHEARS, TINNERS & MACHINISTS	
Conductor		Viking	\$25 00
Cor. Rd., Plain Rd or Sq.		Lennox Throatless	
"Interlock" Galvanized		No. 15	35%
Crated and nested (all		Shear blades	10%
gauges)	75-75%	(f. a. b. Marshalltown, Iowa.)	
Crated and not nested		Peerless Steel Squaring	
(all gauges)	70-15%	Foot Power	
"Milcor" "Titalock" Uniform		No. 1-30", 12 ga. cap.....	15%
		No. 2-36", 12 ga. cap.....	15%
Blue Stove		No. 4-52", 12 ga. cap.....	15%
25 gauge, 5 inch U. C.		No. 10-130", 32 ga. cap.....	15%
nested	11 00	No. 4A-52", 16 ga. cap.....	15%
25 gauge, 6 inch U. C.		Cast Iron Foot Power	
nested	13 00	No. 01-30", 18 ga. cap.....	15%
25 gauge, 7 inch U. C.		Power Driven	
nested	14 00	No. 100 Series, 2 Shaft Drive,	
30 gauge, 5 inch U. C.		No. 142-42", 16 ga. cap.....	15%
nested	10 00	(No. 200 Series, 2 Shaft Under	
30 gauge, 6 inch U. C.		neath Drive.)	
nested	10 50	No. 242-42", 14 ga. cap.....	15%
30 gauge, 7 inch U. C.		(No. 300 Series, 2 Shaft Under	
nested	13 00	neath Drive.)	
T-Joint Made up		No. 342-42", 10 ga. cap.....	15%
6-inch, 25 ga.....per 100	\$2 50	No. 372-72", 10 ga. cap.....	15%
		(No. 500 Series, 2 Shaft Under	
Furnace Pipe		neath Drive.)	
Double Wall Pipe and		No. 500-36", 10 ga. cap.....	15%
Pipe Fittings	50%	(No. 600 Series, 2 Shaft Under	
Single Wall Pipe, Round		neath Drive.)	
Iron Pipe Galvanized.....	50%	No. 6120-120", 3/16" cap.....	15%
Galvanized and Black			
Fittings	50%	SHOES	
Milcor Galvanized		Milcor	
Pipe and Fittings.....	50%	Galv. Std. Gauge, Plain or	
		corg. round flat crimp.....	45%
Lead		25 gauge round flat crimp.....	40%
Per 100 lbs.....	\$12 50	34 gauge round flat crimp.....	10%
		Conductor	65%
Wrt Steel, str't or bent,		SNIPS, TINNERS'	
.....per doz.	\$0 75	Clover Leaf	40 & 10%
Nickel Plated, coil handles,		National	40 & 10%
.....per doz.	1 10	Star	50%
		Milcor	Not
POKERS, FURNACE		SQUARES	
Each	\$0 50	Steel and Iron.....Not	
		(Add for bluing, \$3 per doz. net.)	
PULLEYS		Milre	Not
Furnace Tackle.....per doz.	\$0 50	Try	Not
per gross	5 00	Try and Bevel.....Not	
Furnace Screw (encased)		Try and Milre.....Not	
.....per doz.	75	Pat's	per doz. \$5 00
Ventilating Register		Winterbottom's	10%
Per gross	9 00		
Small, per pair.....	10	STOPPERS, FLUE	
Large, per pair.....	50	Common	per doz. \$1 10
PUTTY		Gem, No. 1.....	per doz. 1 10
Commercial Putty, 100-lb.		Gem, flat, No. 3.....	per doz. 1 00
kits	\$3 40	VENTILATORS ..	
QUADRANTS		Standard	30 to 40%
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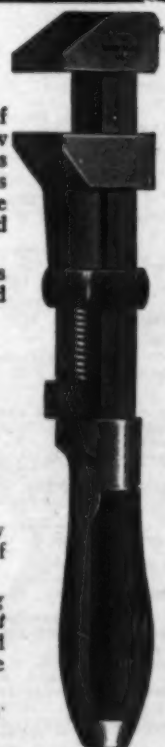
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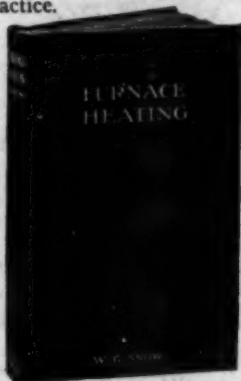
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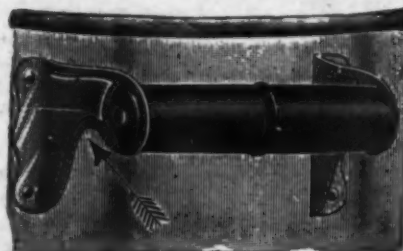
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For paid yearly subscribers, **AMERICAN ARTISAN AND HARDWARE RECORD** will insert under this head advertisements of not more than fifty words **WITHOUT CHARGE**. Employers wishing to secure employees, parties desiring to purchase or sell business, secure partners, or to exchange, etc., will find that these pages offer excellent opportunities to satisfy their wants. Clerks and tinmiths looking for situations will find it to their advantage to use these columns. Those who respond to these announcements please mention that they "READ THE ADVERTISEMENT IN AMERICAN ARTISAN AND HARDWARE RECORD."

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For Sale—Plumbing, furnace and sheet metal business. Central Western Illinois city of 3,500; growing fast; on Ocean to Ocean hwy.; water works and sewer just completed; big demand for plumbing and goods; 35 warm air furnaces will be sold, have 15 assured. Complete outfit of plumbers' tools and tinners' tools, nothing to be bought; business established. Licensed master plumber and furnace expert; will stay and draw wages only when at work; well acquainted with trade; owns home. Brick room located on hardwood 20x70, cement floor in work room, show room very light; rent, phone, light and heat \$18.00 per month. Will invoice about \$1,500; \$1,000 cash, balance six months, secured. Freight reasonable, from St. Louis by river 12 hours, Chicago 48 hours; not necessary to carry large stock. People prosperous; six churches, splendid schools, factories, beautiful city, house rents reasonable. Must go west, real estate investments need attention. Address B-59, care **AMERICAN ARTISAN**, 620 South Michigan Avenue, Chicago, Illinois. 16-3t

For Sale—Combination plumbing and tinshop in one of the prettiest towns of 3,500 population in Colorado. On paved highway to Denver, at the foot of the mountains, on the main highway to Denver mountain parks. Ideal climate summer and winter. Reason for selling this dandy busy shop, I am going into the manufacturing business. Last year was considered a dull year, but this shop averaged better than \$1,000 per month. Plenty of work for plumbers and tinners the year around. Machines and tools practically new. A dandy equipment, including 1925 Ford ton truck. Shop is on main business street. Fine location and good opportunity for a hardware store if desired. Only one other shop in town. Stock, tools and machines will invoice about \$2,750. Better act quick if you want a dandy, clean, up-to-date paying business in a nice clean town with paved streets. New \$200,000 high school. Address B-67, care **AMERICAN ARTISAN**, 620 South Michigan Avenue, Chicago, Illinois. 16-3t

For Sale or Lease—Best equipped shop in Casper, Wyoming. Other business requires my attention. Deal must be closed by May 1. For particulars write Box 150, Casper, Wyoming. 17-3t

For Sale—A well equipped tinshop, located in a thriving little city near several lakes in southern Wisconsin. A snap for a good tinner who is a hustler. Address B-70, care **AMERICAN ARTISAN**, 620 South Michigan Avenue, Chicago, Illinois. 17-3t

BUSINESS CHANCES

For Sale—A sheet metal shop and furnace works located in Wisconsin. Long established and good location. Selling and installing about 200 furnaces per year. Ill health reason for selling. Will consider property in exchange located in Arkansas or southern Missouri. Address B-75, care **AMERICAN ARTISAN**, 620 South Michigan Avenue, Chicago, Illinois. 17-6t

For Sale—Old established sheet metal and stove repair business, including 8-ft. cornice brake, roofing tools, squaring shears, etc., used Ford truck, also ladders. Doing good business. Reason for selling, must settle an estate. Address B-73, care of **AMERICAN ARTISAN**, 620 South Michigan Avenue, Chicago, Illinois. 17-3t

For Sale—Must sell at once; well established sheet metal business and stock, cooperating with large hardware company in adjoining building. Rent on 2,000 foot floor space, tools and fixtures, \$23.00. Good reason for selling. Will show profit to interested party. Thatcher Furnace Agency. Address Darling & Saxton, Wau-pun, Wisconsin. 17-3t

For Sale—Sheet metal shop in northeastern Iowa. Full set of tools. Good established business in town of 1500. No competition. Fine school facilities. Good territory. Excellent opportunity for a tinner and plumber combined. Address B-77, care **AMERICAN ARTISAN**, 620 South Michigan Avenue, Chicago, Illinois. 18-3t

For Sale—On account of other interests taking all my time, will sell well established going sheet metal and furnace business in prosperous Wisconsin city of 10,000 population. Liberal terms and full co-operation. Address B-85, care **AMERICAN ARTISAN**, 620 South Michigan Avenue, Chicago, Illinois. 16-3t

Wanted—To buy a good clean hardware store doing an active business in a town of 1,500 or larger. State amount of business done last year and the price you expect in answer to this ad. Address B-63, care **AMERICAN ARTISAN**, 620 South Michigan Avenue, Chicago, Illinois. 17-3t

HELP WANTED

WANTED—2 first class tinners and skylight makers. Plenty of work all the year around. Job to sober and competent workman at good pay. Also can now use a good working foreman who can estimate and take charge of business when I am away. Delightful climate, never warmer than 96, cool breezes from the bay or gulf most of the time. State age. Wire or address, Box 1936, St. Petersburg, Florida. 18-3t

Wanted—Capable mechanic familiar with blow-piping and general light and light heavy sheet metal work for factories. Must be good layout man and familiar with power equipment in addition to ordinary hand tools. Young man capable of developing into shop foreman preferred. Open shop condition. Good wages and year around job. Address B-79, care **AMERICAN ARTISAN**, 620 South Michigan Avenue, Chicago, Ill. 19-3t

Wanted—At once, tinner that understands furnace work and all kinds of job work. Steady job the year around for right man. Wages \$40.00 per week. Address J. H. Barnett, Dodge City, Kansas. 18-3t

Wanted—A first class sheet metal worker; experienced in cafeteria and kitchen equipment. Steady job for competent man. Address Omaha Fixture and Supply Co., 1101 Douglas St., Omaha, Nebraska. 16-3t

Wanted—Good all around sheet metal worker. State experience on ventilating work. One dollar per hour. Steady position in south. Address B-84, care **AMERICAN ARTISAN**, 620 South Michigan Avenue, Chicago, Illinois. 20-3t

Wanted—An all around sheet metal worker. Steady work for good man. Address Bartholomew & Co., Michigan City, Ind. 19-3t

SITUATION WANTED

Situation Wanted—Young man with 18 years' experience in plumbing, heating and tinning. Would like steady job the year around with some reliable firm. No job too big and none too small. Have Iowa and Illinois plumbers license. Can come by June 15th or sooner if necessary. Please state particulars when answering as to wages, hours if steady work. Get in touch with me at once if you want a reliable man. Can read blue prints and run a shop. Address B-80, care **AMERICAN ARTISAN**, 620 South Michigan Avenue, Chicago, Illinois. 16-3t

Situation Wanted—By tinner and furnace man who can do plumbing. Twenty years' experience; cut own patterns. Have had experience with hardware. Wages and location not considered; I am married and wish steady position. Can come at once. Would like to hear from someone looking for a good man. Address J. R. Alexander, 313 Bridge St., Crookston, Minnesota. 16-3t

Situation Wanted—By a good all around plumber, tinner and steamfitter, also good on repair work. Am middle age, married and want steady position the year around. Am employed at present but want to make a change. Can come on short notice. Please state wages. Address B-71, care **AMERICAN ARTISAN**, 620 South Michigan Avenue, Chicago, Illinois. 17-3t

Situation Wanted—By first class tinner and furnace man, making a specialty of warm air heating. Can lay out blue prints, estimate and draft patterns. 12 years' experience. Age 33. Middle West preferred. State full particulars. Address B-80, care **AMERICAN ARTISAN**, 620 South Michigan Avenue, Chicago, Ill. 19-3t

Situation Wanted—In central western states by competent plumber, fitter and furnace man. Middle age; have family. Have wide experience in the trades. Spent several years in some of the large eastern shops. Am strictly temperate. Can handle the business in capacity of foreman on a paying basis. Address Box 348, Saco, Montana. 17-3t

Situation Wanted—By a first class metal casket maker. Have been foreman of a metal casket factory for some time and I am able to do the work as foreman or first mechanic of big shop. Am single, middle aged. Please state wages. Address B-81, care **AMERICAN ARTISAN**, 620 South Michigan Avenue, Chicago, Illinois. 20-3t

Situation Wanted—By sheet metal worker and furnace man, stove repairing. Have had four years' experience in hardware store and selling farm machinery. Prefer western Montana, northern Idaho or Washington. Married, 44 years of age. Can start after the first week in May. Address Geo. W. Burton, P. O. Box 127, Anaconda, Montana. 16-3t

Situation Wanted—By practical tinner furnace workman with some plumbing experience in a country town, shop connected with hardware store. Will work at a reasonable salary, or buy one half interest in live tin shop. Address H. J. Ester, 725 W. Main St., Washington, Missouri. 20-3t

Situation Wanted—By a first-class sheet metal worker. Am able to lay out all kinds of work. Am sober, steady and reliable. Kindly state wages and hours you work in letter. Address B-74, care **AMERICAN ARTISAN**, 620 South Michigan Avenue, Chicago, Illinois. 17-3t

Situation Wanted—By a first class combination plumber and tinner, also all around repairing. Married. Want steady position the year around with a hardware firm in a small town. Address B-82, care **AMERICAN ARTISAN**, 620 South Michigan Avenue, Chicago, Illinois. 20-3t

SITUATION WANTED

Situation Wanted—By first-class sheet metal worker and plumber. Furnace installer and radiator repairing. All general repairing. Would like position where there is plenty of work. Address B-68, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 17-3t

Wanted—Steady position as plumber; also handy on steam or hot water heating. Also good gas engine mechanic. Married. Can furnish best of references. Address B-76, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 18-3t.

Situation Wanted—By a practical all-around sheet metal worker with 25 years' experience. Can lay out own work and erect same. State wages. Position must be steady. Address B-78, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 18-3t.

TINNERS' TOOLS

Wanted—1 pair of No. 742½ wide gauge roofing seamers to follow 1½ and 1¼ roofing tongs. 1 roofing cleater and nailer No. 997 for wide gauge; 1 No. 542 large turner; 1 No. 540 small turner with 1½ face; 1 No. 550 elbow edging machine with 1½ face; 1 No. 986 skate ripper; also some stakes as follows—No. 949 double seaming with 4 heads; No. 958 teakettle stake with 4 heads. All tools and machines must be in perfect working condition. State what you have, its condition and price. Address Box 216, Saybrook, Illinois. 18-3t.

For Sale—Three turning machines, different sizes; burring machine, bench shears, 30-in. forming rolls, beading machines, grooving machine, two wiring machines, setting down machine, machine for seaming bottoms, several sizes, one bar folder, one pipe folding machine, gutter beader and other small tools. First check for \$50 gets them at once. These machines have standards. Address B-64, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 17-3t

For Sale—2 forming machines, 2 sheet iron folders, 1 bar folding machine, 1 wiring machine, turning and buring machine, 1 30-inch squaring machine, 1 beader, 1 groover, double seamers, stakes, tongs, bench shears, and small tools, set of plumbing tools, 1 new National cash register, cost \$275, will sell cheap, used 15 months. Address Box 251, Cowden, Ill. 19-3t

For Sale—Complete set of tinnern's and roofers' tools. Part new and all in A-1 condition. Closing out tin shop. A bargain in tinnern's tools. Write for price list. Also set of plumber's tools. W. L. Salyers, Carrollton, Ky. 17-3t

For Sale—One Peck-Stow-Wilcox 30" square shear in first-class condition and priced reasonable. Address B-72, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 17-3t

Wanted—1 10-inch brake A-1 condition and squaring shears. The price must be right. Address B-83, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 20-3t

Wanted—Ten foot Chicago steel cornice brake. Must be in good condition and a bargain for cash. Address B-85, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 20-3t

Wanted—Set of 30-inch squaring shears. Must be in good shape and a bargain for cash. Address B-66, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 16-3t

For Sale—A complete set of sheet metal tools and machines, benches, ropes, stock. Cheap if taken at once. Address Paul M. Pink, 1924 N. Fairfield Avenue, Chicago, Ill. 19-3t

Wanted—To buy a second hand circular shear in good condition. Address Johnson Heating Co., 3449 South Broadway, Englewood, Colorado. 18-3t.

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FOR SALE—Established 30 years at Grinnell, Iowa. Retail. Death of owner cause of selling. Good opportunity. Small capital required. Shop, garage, dwelling on ground. May be rented. Address Lillie M. Griffith, Executrix, Grinnell, Iowa. 18-2t.

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1—Power driven circle shear and flanger.
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WANTED

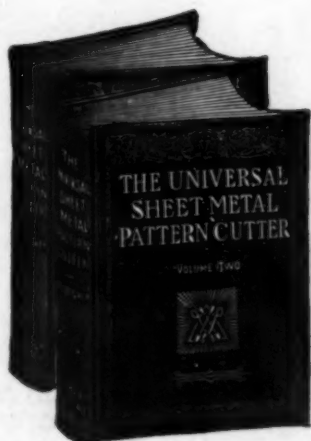
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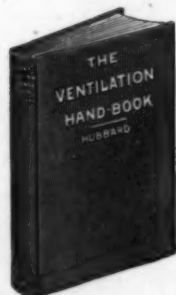
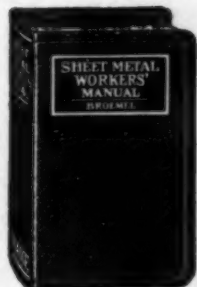
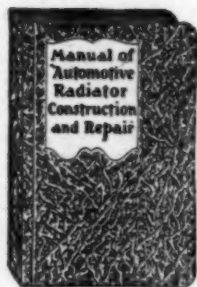
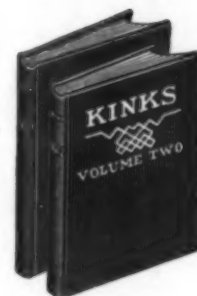
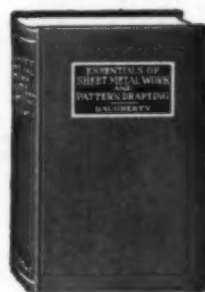
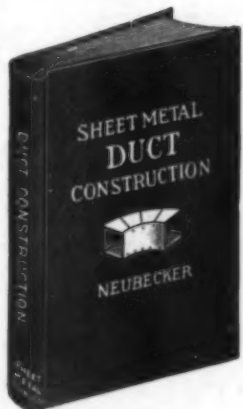
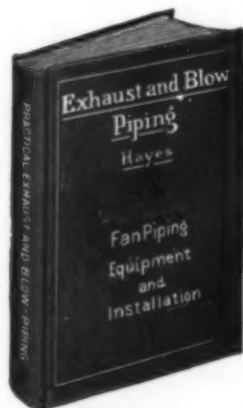
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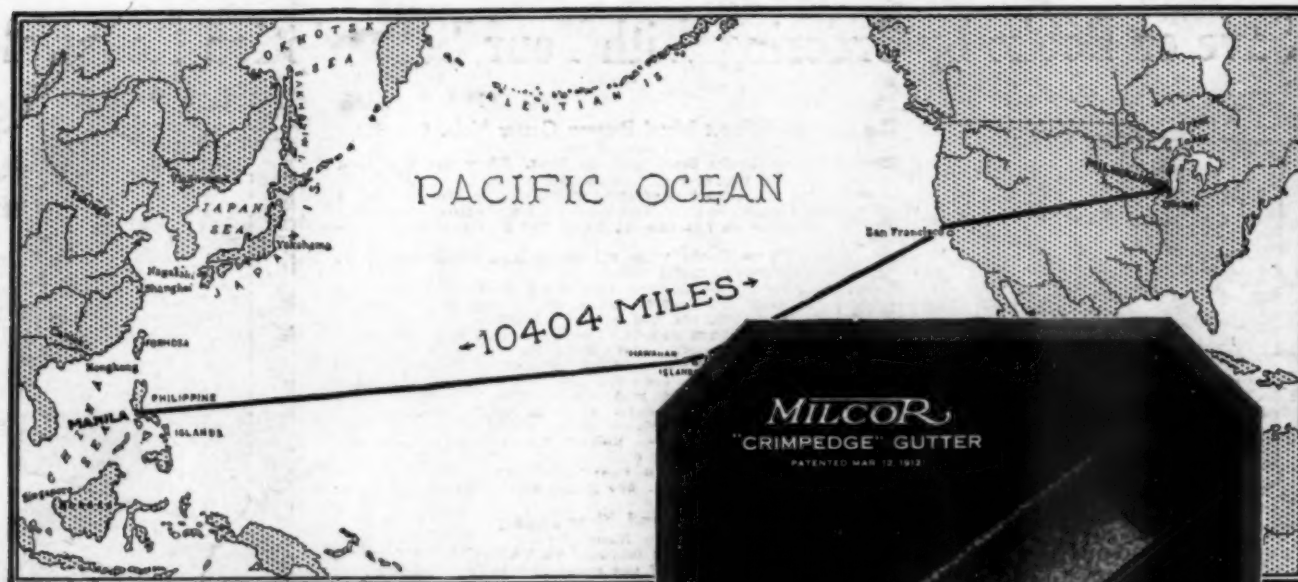
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